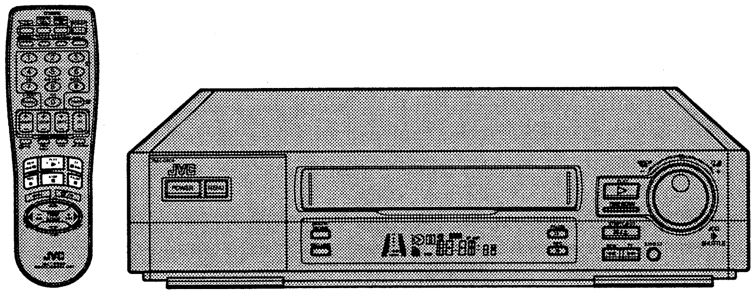
JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-S4500U/S7500U



Hi-Fi S-VHS
VCR Plus+ Cable Box Control
Easy Taping.
COMMERCIAL ADVANCE®
MOVIE ADVANCE™
Super VHS ET
TIME SCAN

Regarding service information other than these sections, refer to the HR-S9500U service manual (No. 82669). Also, be sure to note important safety precautions provided in the service manual.

SPECIFICATIONS *(The specifications shown pertain specifically to the model HR-S7500U)*

GENERAL

Power requirement	: AC 120 V∿, 60 Hz
Power consumption	
Power on	: 28 W
Power off	: 3 W
Temperature	
Operating	: 5°C to 40°C (41°F to 104°F)
Storage	: –20°C to 60°C (–4°F to140°F)
Operating position	: Horizontal only
Dimensions (W x H x D)	: 430 x 94 x 348 mm (16-15/16" x 3-3/4" x 13-3/4")
Weight	: 4.0 kg (8.8 lbs)
Format	: S-VHS/VHS NTSC standard
Maximum recording time	
SP	: 210 min. with ST-210 video cassette
EP	: 630 min. with ST-210 video cassette

VIDEO/AUDIO

Signal system	: NTSC-type color signal and EIA monochrome signal, 525 lines/60 fields
Recording/ Playback system	: DA-4 (Double Azimuth) head helical scan system
Signal-to-noise ratio	: 45 dB
Horizontal resolution	: 240 lines (VHS) : 400 lines (S-VHS)
Frequency range	
Normal audio	: 70 Hz to 10,000 Hz
Hi-Fi audio	: 20 Hz to 20,000 Hz
Input/Output	: RCA connectors (IN x 2, OUT x 1) : S-Video connectors (IN x 1, OUT x 1)

TUNER

Tuning system	: Frequency-synthesized tuner
Channel coverage	
VHF	: Channels 2–13
UHF	: Channels 14–69
CATV	: 113 Channels
RF output	: Channel 3 or 4 (switchable; preset to Channel 3 when shipped) 75 ohms, unbalanced

TIMER

Clock reference	: Quartz
Program capacity	: 1-year programmable timer/ 8 programs
Memory backup time	: Approx. 10 min.

ACCESSORIES

Provided accessories	: RF cable (F-type), Infrared remote control unit, "AA" battery x 2, Audio/Video Cable, S-Video cable (4-pin), Controller

Specifications shown are for SP mode unless otherwise specified.
E. & O.E. Design and specifications subject to change without notice.

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No. 82670
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The following table indicate main differnt points between models HR-S9500U, HR-S4500U and HR-S7500U.

MODEL ITEM	HR-S9500U	HR-S7500U	HR-S4500U
FRONT PANEL	GOLD	BLACK	BLACK
DEGITAL 3R	USED	←	NOT USED
TBC	USED	←	NOT USED
3D CIRCUIT	4M	2M	NOT USED
PRO.SLOW(DD)	SP:±1/2,1/3,EP:±1/2	NOT USED	NOT USED
REC LEVEL CTL	USED	←	NOT USED
CM/MV ADVANCE	USED	←	MV ADVANCE
JLIP	USED	NOT USED	NOT USED

The following table indicate different parts number between models HR-S9500U, HR-S4500U and HR-S7500U.

PACKING AND ACCESSORY ASSEMBLY<M1>

⚠	REF. NO.	MODEL ITEM	HR-S9500U	HR-S7500U	HR-S4500U
	301	PACKING CASE	LP30450-001B	LP30183-014A	LP30423-033B
	302	CUSHION ASSY	LP30430-001A	LP30318-001B	LP30424-001D
	303	POLY BAG	PQM30021-95	←	PQM30021-93
	306	REMOTE CONTROLLER	LP20465-001D	LP20337-005B	←
	306A	COVER(BATTERY)	LP40254-003B	LP40254-001B	←
⚠	310	INST.BOOK(EN)	LPT0027-001A	LPT0026-001A	LPT0025-001B
⚠		INST.BOOK(FR)	LPT0027-003A	LPT0026-003A	—
	313	Q.S.SHEET	LPT0027-002A	LPT0026-002A	LPT0025-002A
	325	S CABLE	PU60111	PEAC0358-120	←
		A/V RCA CABLE	—	PEAC0396-120	←

Notes : Mark — is not used.
Mark ← is same as left.

CABINET AND CHASSIS ASSEMBLY <M2>

⚠	REF. NO.	MODEL ITEM	HR-S9500U	HR-S7500U	HR-S4500U
⚠	550	FRONT PANEL ASSY	LP10088-003B	LP10033-010C	LP10125-021E
	550A	C.H.DOOR/CASSETTE DOOR	LP20249-004B	PQ21884-110-18	LP20342-015B
	550C	DISPLAY WINDOW	LP20250-002A	LP20068-009A	LP20343-015B
⚠	551	TOP COVER	PQ11922-16	PQ11676-75	PQ11676-63
	552	SCREW,TOP COVER(REAR)	QYTDSF3010M	—	—
	553	SCREW.TOP COVER(SIDE)	QYTDSF3010R	QYTDSF3020M	QYTDSF3010M
	554	WINDOW(DOOR)	LP20255-002A	—	—
	555	COVER(F.P)ASSY	LP20315-002B	—	—
	556	SCREW.×2 COVER(FRONT PANEL)	QYTDSF2608Z	—	—
	557	SPACER(MECHA)	LP40441-001A	—	LP40441-001A
⚠	560	BOTTOM CHASSIS	LP10140-001A	LP10116-001C	←
⚠	563	BOTTOM COVER	PQ11921-1-3	PQ11668-2-10	←
	572	FRONT BRACKET	LP30247-001B	←	—
	573	SCREW.×2 FRONT BRACKET	QYTDST2606Z	←	—
	576	FOOT ASSY	PQ46617A	—	—
	577	SCREW.×2 JACK BOARD	QYTDSF2608Z	—	—
	578	FOOT(2).	PQ35504-2	—	—
	587	DAMPER ASSY.C.H.DOOR	LP40158-001B	—	—
	588	DAMPER ASSY.WINDOW(DOOR)	LP40158-002B	—	—
	582	SCREW.×2 BOTTOM COVER	QYTDSF3010Z	—	—
	583	STICKER(ENERGY)	LP40266-001B	—	—
	584	STICKER(2)	LP30350-016A	—	—
	585	STICKER(4)	LP40431-001B	—	—
	586	STICKER(SVHSET)	LP40452-001A	—	—
	589	KNOB(SHUTTLE)	—	LP30120-006A	LP30120-001A
	590	KNOB(JOG)	—	LP30121-006A	LP30121-001A
	591	SCREW.×2 JOG	—	QYTDSF2608Z	←
	592	SIDE PANEL ASSY(L)	—	LP30153-001A	—
	593	SIDE PANEL(R)	—	LP10036-001A	—
	WR4	FFC WIRE. S JACK	QUQ212-0456CG	—	—
	WR6	WIRE ASSY. JOG	—	QUQ112-0716CG	←

Notes : Mark — is not used.
Mark ← is same as left.

MAIN BOARD ASSEMBLY <03>

⚠ REF. NO.	MODEL ITEM	HR-S9500U	HR-S7500U	HR-S4500U
PW1	MAIN BOARD ASSY	LPA10028-05E1	LPA10028-11E1	LPA10028-10E1
IC2201	IC	AN3665FB-A	←	AN3665FB
IC3001	IC	HD6433929TB31F	←	HD6433928TB07F
IC3004	IC	AT24C16-10PC	←	M24C04-BN6
IC3301	IC	HD6433926TB35F	←	HD6433926TB27F
IC4101	IC	BA10324AF	—	—
IC4102	IC	TC4S30F	—	—
IC4103	IC	BU4066BCF	—	—
IC7201	IC	UPD754302GS-100	—	—
Q6	TRANSISTOR	2SA1576A/QRS	2SA1576A/QR	←
Q401	TRANSISTOR	2SA1576A/QRS	2SA1576A/QR	2SA1576A/QRS
Q404	TRANSISTOR	2SA1576A/QRS	2SA1576A/QR	2SA1576A/QRS
Q405	TRANSISTOR	2SA1576A/QRS	2SA1576A/QR	2SA1576A/QRS
Q4101	TRANSISTOR	DTC144WU	—	—
Q4102	TRANSISTOR	DTC144WU	—	—
D4101	DIODE	DA204U	—	—
D4102	DIODE	DAP202U	—	—
D4103	DIODE	1SS133	—	—
R34	RESISTOR	—	—	NRSA02J-272X
R60	RESISTOR	—	—	NRSA02J-183X
R61	RESISTOR	—	—	NRSA02J-153X
R64	RESISTOR	NRSA02J-393X	←	NRSA02J-563X
R2232	RESISTOR	NRSA02J-123X	←	—
R2233	RESISTOR	NRSA02J-823X	←	—
R3001	RESISTOR	NRSA02J-472X	←	—
R3002	RESISTOR	NRSA02J-472X	←	—
R3021	RESISTOR	NRSA02J-102X	←	—
R3026	RESISTOR	NRSA02J-0R0X	—	—
R3027	RESISTOR	NRSA02J-0R0X	—	—
R3042	RESISTOR	—	—	NRSA02J-102X
R3045	RESISTOR	NRSA02J-0R0X	←	NRSA02J-102X
R3247	RESISTOR	—	—	NRSA02J-103X
R3248	RESISTOR	—	—	NRSA02J-103X
R3253	RESISTOR	NRSA02J-103X	←	—
R3254	RESISTOR	—	NRSA02J-103X	←
R3334	RESISTOR	NRSA02J-102X	NRSA02J-0R0X	←
R3335	RESISTOR	NRSA02J-102X	NRSA02J-0R0X	←
R3336	RESISTOR	NRSA02J-102X	NRSA02J-0R0X	←
R3337	RESISTOR	NRSA02J-102X	NRSA02J-0R0X	←
R3338	RESISTOR	NRSA02J-102X	NRSA02J-0R0X	←
R3339	RESISTOR	NRSA02J-102X	NRSA02J-0R0X	←
R3340	RESISTOR	NRSA02J-102X	NRSA02J-0R0X	←
R3341	RESISTOR	NRSA02J-102X	NRSA02J-0R0X	←
R3351	RESISTOR	NRSA02J-102X	←	—

Notes : Mark — is not used.
Mark ← is same as left.

⚠ REF. NO.	ITEM / MODEL	HR-S9500U	HR-S7500U	HR-S4500U
R3360	RESISTOR	NRSA02J-102X	—	—
R3364	RESISTOR	NRSA02J-102X	—	—
R3365	RESISTOR	NRSA02J-102X	—	—
R3506	RESISTOR	NRSA02J-472X	NRSA02J-103X	NRSA02J-472X
R4101	RESISTOR	NRSA02J-105X	—	—
R4102	RESISTOR	NRSA02J-224X	—	—
R4103	RESISTOR	NRSA02J-103X	—	—
R4104	RESISTOR	NRSA02J-103X	—	—
R4105	RESISTOR	NRSA02J-104X	—	—
R4106	RESISTOR	NRSA02J-103X	NRSA02J-222X	←
R4107	RESISTOR	NRSA02J-103X	—	—
R4108	RESISTOR	NRSA02J-0R0X	—	—
R4109	RESISTOR	NRSA02J-102X	NRSA02J-0R0X	NRSA02J-102X
R4110	RESISTOR	NRSA02J-103X	—	—
R4111	RESISTOR	NRSA02J-105X	—	—
R4112	RESISTOR	NRSA02J-105X	—	—
R4114	RESISTOR	NRSA02J-103X	—	—
R4115	RESISTOR	NRSA02J-103X	—	—
R5301	RESISTOR	NRSA02J-3R3X	←	NRSA02J-5R6X
R5302	RESISTOR	NRSA02J-3R3X	←	NRSA02J-5R6X
R5303	RESISTOR	NRSA02J-3R3X	←	NRSA02J-5R6X
R5304	RESISTOR	NRSA02J-2R7X	←	NRSA02J-5R6X
R7201	RESISTOR	NRSA02J-105X	—	—
R7221	RESISTOR	NRSA02J-102X	—	—
R7236	RESISTOR	NRSA02J-471X	—	—
R7241	RESISTOR	QRE141J-103Y	—	—
C14	CAPACITOR	NCF21CZ-474X	←	NCB21EK-333X
C19	CAPACITOR	NDC21HJ-270X	←	—
C54	E CAPACITOR	QEKJ1CM-106	←	QEKJ1HM-225
C138	CAPACITOR	NCB21HK-103X	NRSA02J-0R0X	←
C2233	E CAPACITOR	QEKJ1HM-105	←	—
C2234	E CAPACITOR	QEKJ1HM-105	←	—
C2236	E CAPACITOR	QEKJ1CM-476	←	—
C4101	CAPACITOR	NCB21CK-224X	—	—
C4102	E CAPACITOR	QEKJ1CM-106	—	—
C4103	CAPACITOR	NCB21EK-103X	—	—
C4106	CAPACITOR	NCB21HK-102X	—	—
C7201	CAPACITOR	NCB21HK-103X	—	—
L3	COIL	QQL231J-220Y	←	—
L3005	RESISTOR	—	QRE141J-0R0Y	—
CF7201	RESONATOR	QAX0498-001Z	—	—
⚠ TB1	TERMINAL BOARD ASSY	LP30360-004B	LP30360-007B	←
CN3006	CONNECTOR,(1-7)JOG	—	QGF1207C1-07	←
CN7201	CONNECTOR,(1-3)JLIP	QGD2003C1-03	—	—

Notes : Mark — is not used.
Mark ← is same as left.

3D SVHS BOARD ASSEMBLY <05>

⚠ REF. NO.	MODEL / ITEM	HR-S9500U	HR-S7500U	HR-S4500U
PW1	3D SVHS BOARD ASSY	LPA10033-01B	LPA10033-03B	—

2D SVHS BOARD ASSEMBLY <05>

⚠ REF. NO.	MODEL / ITEM	HR-S9500U	HR-S7500U	HR-S4500U
PW1	2D SVHS BOARD ASSY	—	—	LPA10017-04B

MV/CM ADV BOARD ASSEMBLY <23>

⚠ REF. NO.	MODEL / ITEM	HR-S9500U	HR-S7500U	HR-S4500U
PW1	MV/CM BOARD ASSY	LPA10013-02A	LPA10013-02A	LPA10013-01C

SW/DISPLAY BOARD ASSEMBLY <28>

⚠ REF. NO.	MODEL / ITEM	HR-S9500U	HR-S7500U	HR-S4500U
PW1	SW/DISPLAY BOARD ASSY	LPA10031-01B1	LPA10039-01B1	LPA10018-10B1

Notes : Mark — is not used.

REC SAFETY BOARD ASSEMBLY <32>

⚠ REF. NO.	MODEL ITEM	HR-S9500U	HR-S7500U	HR-S4500U
PW2	REC SAFETY BOARD ASSY	LPA10031-01B2	LPA10039-01B2	LPA10018-01B2

JACK BOARD ASSEMBLY <36>

⚠ REF. NO.	MODEL ITEM	HR-S9500U	HR-S7500U	HR-S4500U
PW3	JACK BOARD ASSY	LPA10031-01B3	—	—

JOG BOARD ASSEMBLY <37>

⚠ REF. NO.	MODEL ITEM	HR-S9500U	HR-S7500U	HR-S4500U
PW3	JOG BOARD ASSY	—	LPA10039-01B3	LPA10018-10B3

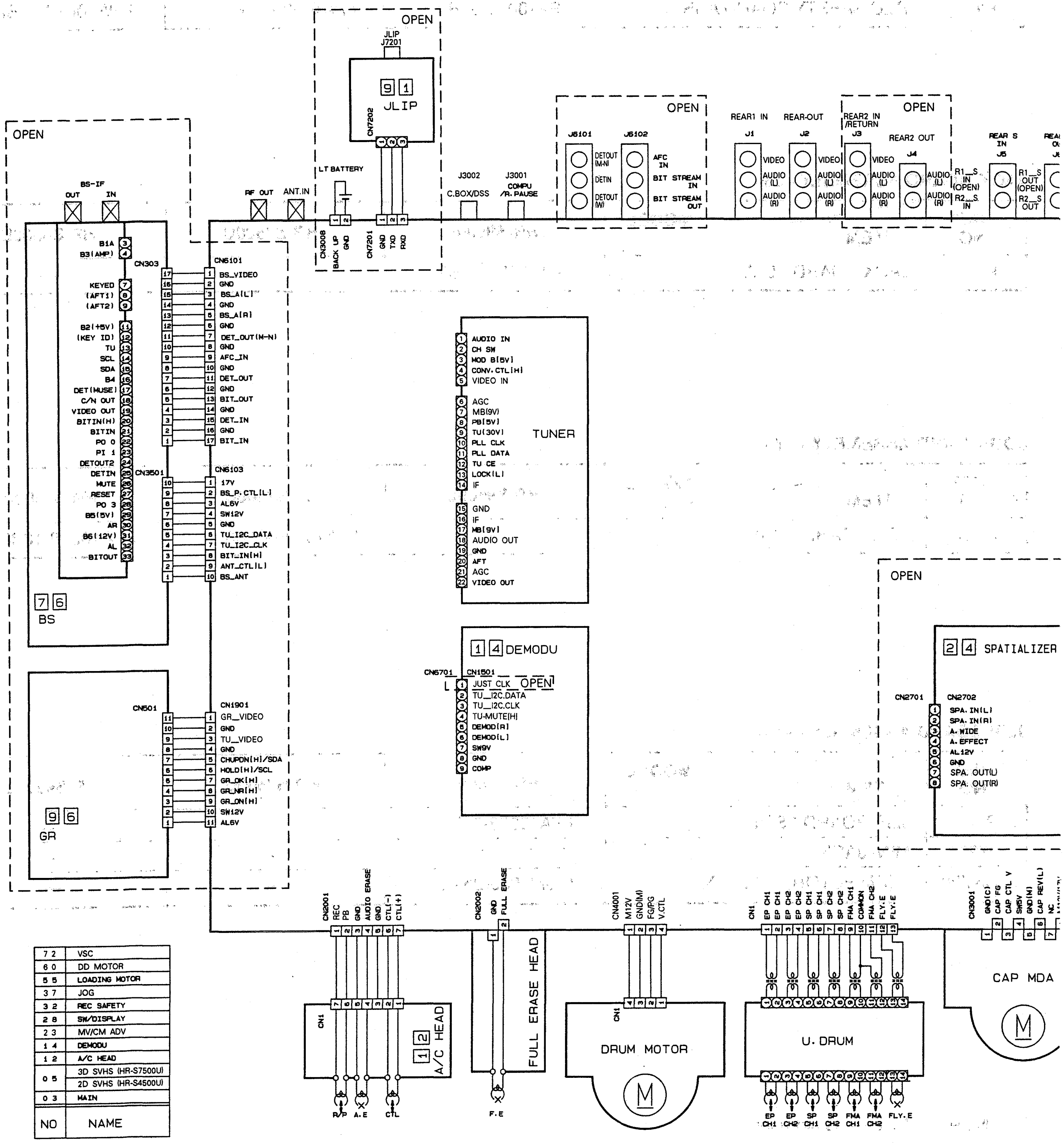
JLIP BOARD ASSEMBLY <91>

⚠ REF. NO.	MODEL ITEM	HR-S9500U	HR-S7500U	HR-S4500U
PW2	JLIP BOARD ASSY	LPA10028-01D2	—	—
J7201	MINI JACK	PEMC1190	—	—
CN7202	CONNECTOR,(1-3)MAIN	QUM0033-26A4BF	—	—

Notes : Mark — is not used.

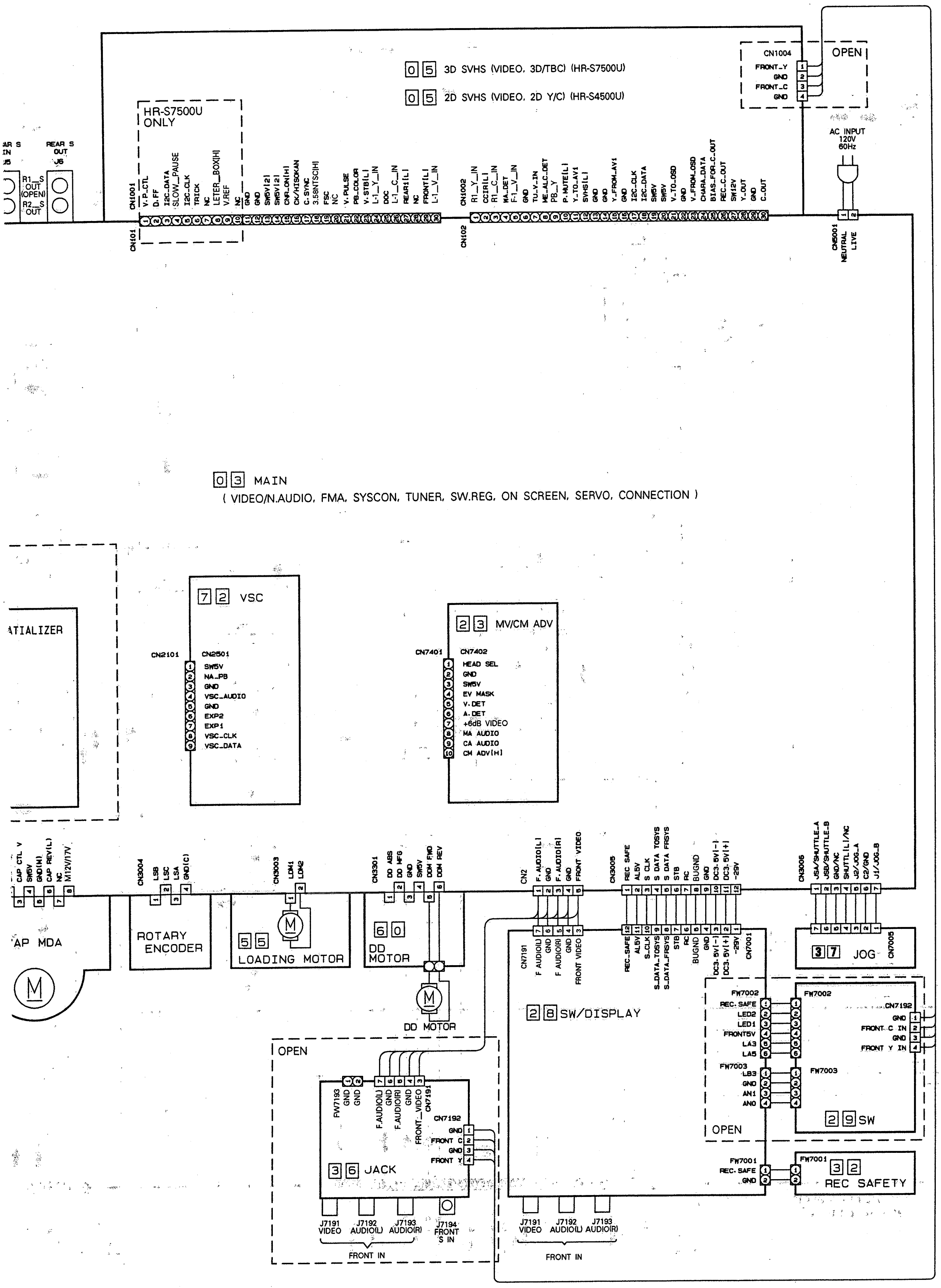
SECTION 4
CHARTS AND DIAGRAMS

4.1 BOARD INTERCONNECTIONS

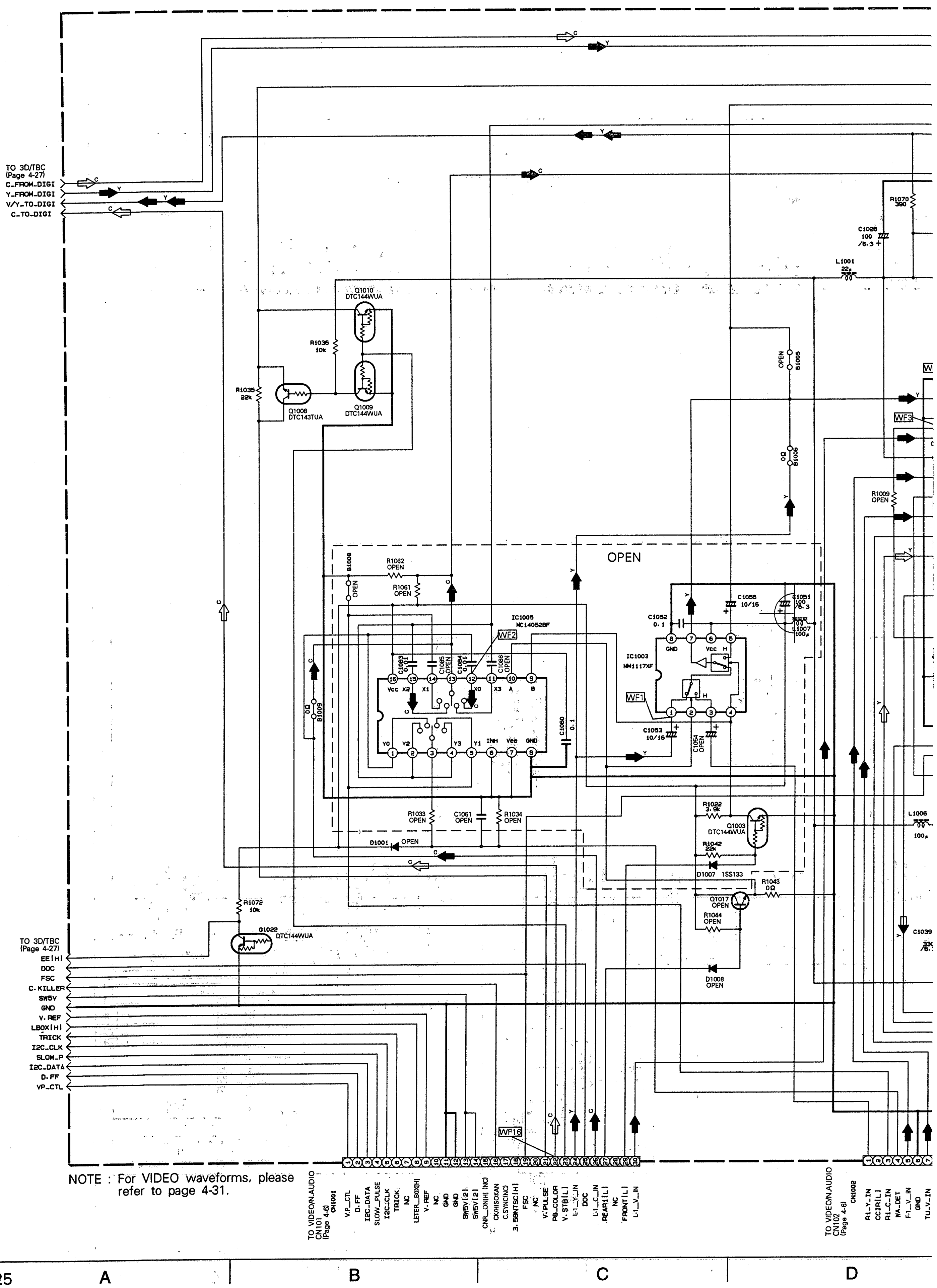


OPEN
JLIP J7201
9 1 JLIP
CN7202
LT BATTERY
CN3008 BACK UP GND
CN7201 GND TXD RXD
J3002 C.BOX/DSS
J3001 COMPU /R. PAUSE
J6101 DETOUT (M-N) DETIN DETOUT (W)
J6102 AFC IN BIT STREAM IN BIT STREAM OUT
REAR1 IN J1 VIDEO AUDIO (L) AUDIO (R)
REAR-OUT J2 VIDEO AUDIO (L) AUDIO (R)
REAR2 IN /RETURN J3 VIDEO AUDIO (L) AUDIO (R)
REAR2 OUT J4 AUDIO (L) AUDIO (R)
R1_S IN (OPEN) R2_S IN
REAR S IN J5 R1_S OUT (OPEN) R2_S OUT
BS-IF OUT IN
RF OUT ANT.IN
B1A B3(AMP) CN303
KEYED (AFT1) (AFT2)
B2(+5V) (KEY ID) TU SCL SDA B4 DET(MUSE) C/N OUT VIDEO OUT BITIN(H) BITIN PO 0 PI 1 DETOUT2 DETIN MUTE RESET PO 3 B5(5V) AR B6(12V) AL BITOUT
CN3501
7 6 BS
CN6101 BS_VIDEO GND BS_A(L) GND BS_A(R) GND DET_OUT(M-N) GND AFC_IN GND DET_OUT GND BIT_OUT GND DET_IN GND BIT_IN
CN6103 17V BS_P.CTL(L) AL6V SW12V GND TU_I2C_DATA TU_I2C_CLK BIT_IN(H) ANT_CTL(L) BS_ANT
CN501
9 6 GR
CN1901 GR_VIDEO GND TU_VIDEO GND CHUPON(H)/SDA HOLD(H)/SCL GR_OK(H) GR_NR(H) GR_ON(H) SW12V AL6V
TUNER
AUDIO IN CH SW MOD B(5V) CONV.CTL(H) VIDEO IN AGC MB(9V) PB(5V) TU(30V) PLL CLK PLL DATA TU CE LOCK(L) IF GND IF MB(9V) AUDIO OUT GND AFT AGC VIDEO OUT
1 4 DEMODU
CN6701 CN1501 JUST CLK OPEN TU_I2C.DATA TU_I2C.CLK TU-MUTE(H) DEMOD(R) DEMOD(L) SW9V GND COMP
2 4 SPATIALIZER
CN2701 CN2702 SPA. IN(L) SPA. IN(R) A. WIDE A. EFFECT AL 12V GND SPA. OUT(L) SPA. OUT(R)
CN2001 REC PB GND AUDIO ERASE GND CTL(-) CTL(+)
CN1 1 2 A/C HEAD
R/P A.E CTL
CN2002 GND FULL ERASE
FULL ERASE HEAD
F.E
CN4001 M12V GND(M) FG/PG V.CTL
CN1 DRUM MOTOR
CN1 EP CH1 EP CH1 EP CH2 EP CH2 SP CH1 SP CH1 SP CH2 SP CH2 FMA CH1 COMMON FMA CH2 FLY.E FLY.E
U. DRUM
EP CH1 EP CH2 SP CH1 SP CH2 FMA CH1 FMA CH2 FLY.E
CN3001 GND(C) CAP FG CAP CTL V SW5V GND(M) CAP REV(L) NC
CAP MDA
M

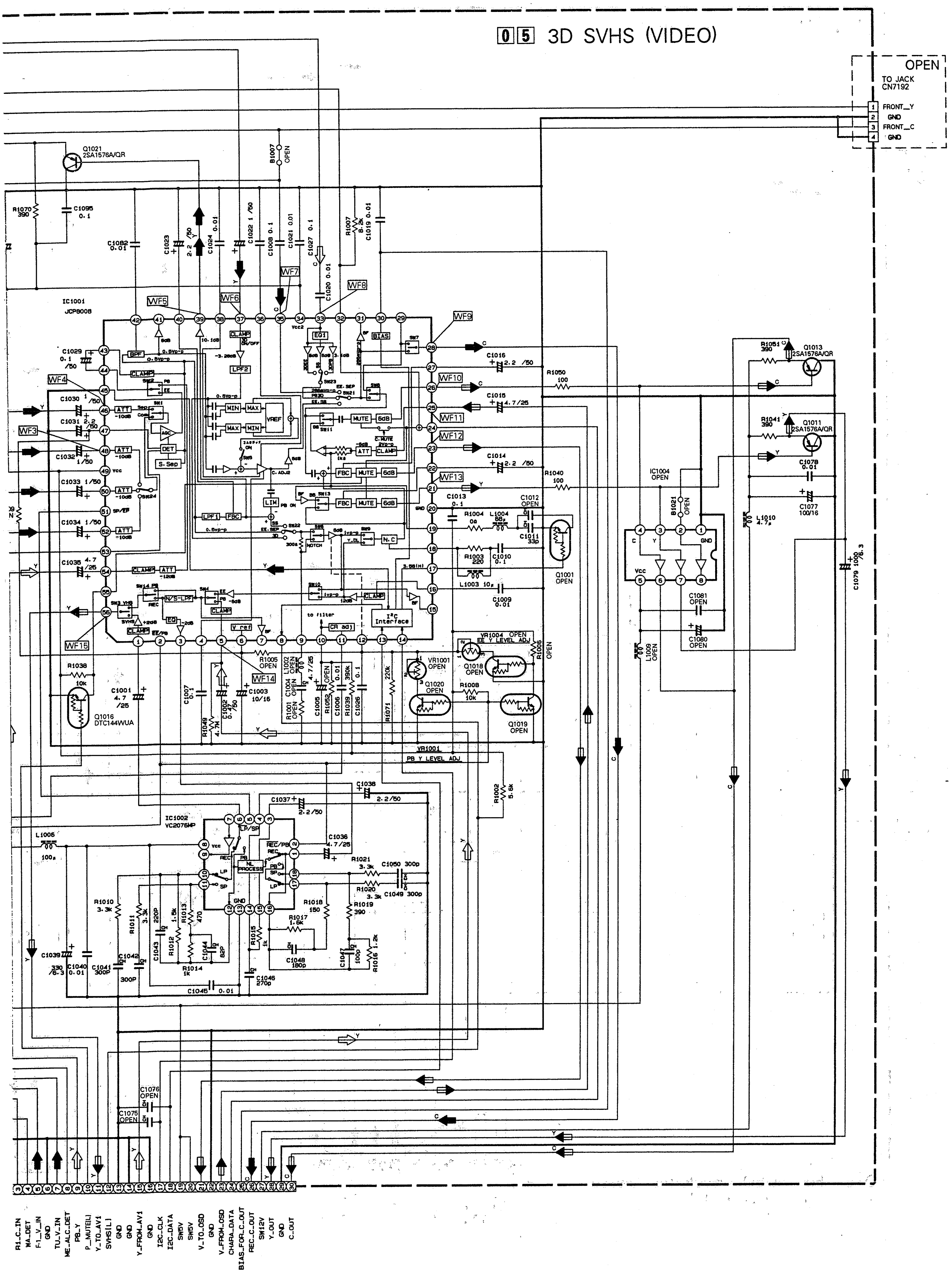
NO	NAME
7 2	VSC
6 0	DD MOTOR
5 5	LOADING MOTOR
3 7	JOG
3 2	REC SAFETY
2 8	SW/DISPLAY
2 3	MV/CM ADV
1 4	DEMODU
1 2	A/C HEAD
0 5	3D SVHS (HR-S7500U) 2D SVHS (HR-S4500U)
0 3	MAIN


05 3D SVHS (VIDEO, 3D/TBC) (HR-S7500U)
05 2D SVHS (VIDEO, 2D Y/C) (HR-S4500U)
HR-S7500U ONLY
CN1001
CN101
V.P_CTL
D.FF
I2C_DATA
SLOW_PAUSE
I2C_CLK
TRICK
NC
LETER_BOX[H]
V.REF
NC
GND
GND
SW5V[2]
SW5V[2]
CNR_ON[H]
CK/HISOKAN
C.SYNC
3.58NTSC[H]
FSC
NC
V.PULSE
PB_COLOR
V.STB[L]
L-1_Y_IN
DOC
L-1_C_IN
REAR1[L]
NC
FRONT[L]
L-1_V_IN
CN1002
CN102
R1_Y_IN
CCIR[L]
R1_C_IN
WA_DET
F-1_V_IN
GND
TU_V_IN
ME_ALC_DET
PB_Y
P.MUTE[L]
Y_TO_AV1
SVHS[L]
GND
GND
Y_FROM_AV1
GND
I2C_CLK
I2C_DATA
SW5V
SW5V
V_TO_OSD
GND
V_FROM_OSD
CHARA_DATA
BIAS_FOR_C_OUT
REC_C_OUT
SW12V
Y_OUT
GND
C_OUT
CN1004
FRONT_Y
GND
FRONT_C
GND
OPEN
AC INPUT 120V 60Hz
CN5001
NEUTRAL
LIVE
AR S IN
J5
REAR S OUT
J6
R1_S OUT (OPEN)
R2_S OUT
03 MAIN
(VIDEO/N.AUDIO, FMA, SYSCON, TUNER, SW.REG, ON SCREEN, SERVO, CONNECTION)
TIALIZER
72 VSC
CN2101
CN2501
SW5V
NA_PB
GND
VSC_AUDIO
GND
EXP2
EXP1
VSC_CLK
VSC_DATA
23 MV/CM ADV
CN7401
CN7402
HEAD SEL
GND
SW5V
EV MASK
V.DET
A.DET
+6dB VIDEO
MA AUDIO
CA AUDIO
CM ADV[H]
CAP CTL V
SW5V
GND(M)
CAP REV(L)
NC
M12V/17V
AP MDA
CN3004
LSB
LSC
LSA
GND(C)
ROTARY ENCODER
CN3003
LDM1
LDM2
55 LOADING MOTOR
CN3301
DD ABS
DD MFG
GND
SW5V
DDM FWD
DDM REV
60 DD MOTOR
DD MOTOR
CN2
F.AUDIO[L]
GND
F.AUDIO[R]
GND
FRONT VIDEO
CN7191
F AUDIO(L)
GND
F AUDIO(R)
GND
FRONT VIDEO
CN3005
REC SAFE
AL5V
S CLK
S DATA TOSYS
S DATA FRSYS
STB
RC
BUGND
GND
DC3.5V[-]
DC3.5V[+]
-29V
CN7001
REC_SAFE
AL5V
S_CLK
S_DATA_TOSYS
S_DATA_FRSYS
STB
RC
BUGND
GND
DC3.5V[-]
DC3.5V[+]
-29V
CN3006
JSA/SHUTTLE_A
JSB/SHUTTLE_B
GND/NC
SHUTTL[L]/NC
J2/JOG_A
C2/GND
J1/JOG_B
37 JOG
CN7005
28 SW/DISPLAY
FW7002
REC. SAFE
LED2
LED1
FRONT5V
LA3
LA5
FW7003
LB3
GND
AN1
AN0
OPEN
FW7002
CN7192
GND
FRONT C IN
GND
FRONT Y IN
FW7003
29 SW
FW7001
REC. SAFE
GND
FW7001
32 REC SAFETY
OPEN
FW7193
GND
GND
F.AUDIO(L)
GND
F.AUDIO(R)
GND
FRONT_VIDEO
CN7191
CN7192
GND
FRONT C
GND
FRONT Y
36 JACK
J7191 VIDEO
J7192 AUDIO(L)
J7193 AUDIO(R)
J7194 FRONT S IN
FRONT IN
J7191 VIDEO
J7192 AUDIO(L)
J7193 AUDIO(R)
FRONT IN

4.11 3D SVHS (VIDEO) SCHEMATIC DIAGRAM (HR-S7500U)

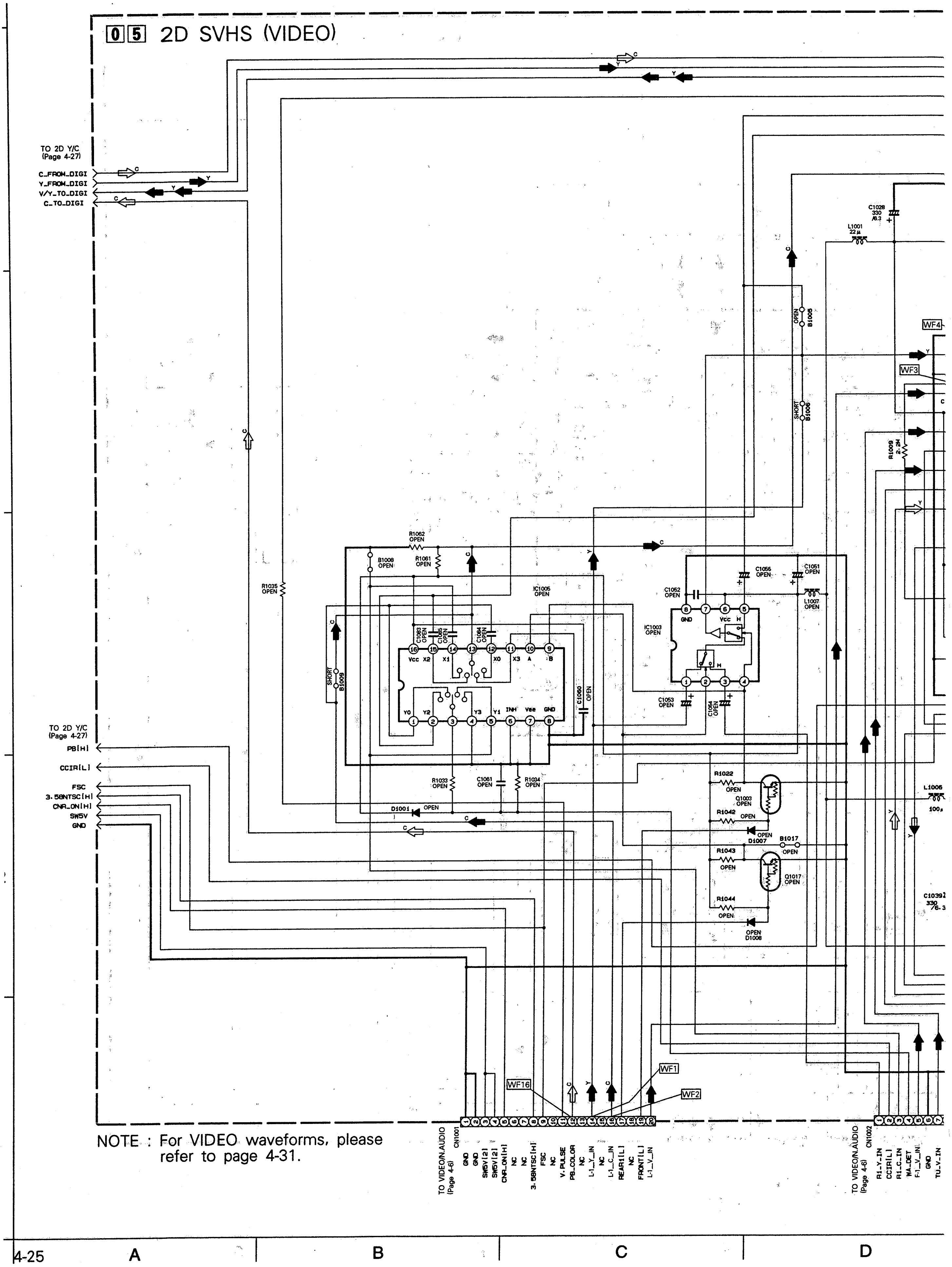

TO 3D/TBC
(Page 4-27)
C_FROM_DIGI
Y_FROM_DIGI
V/Y_TO_DIGI
C_TO_DIGI
Q1010
DTC144WUA
R1036
10k
R1035
22k
Q1008
DTC143TUA
Q1009
DTC144WUA
R1070
390
C1028
100
/6.3
L1001
22μ
B1005
OPEN
B1006
0Ω
R1009
OPEN
WF3
OPEN
B1008
OPEN
R1062
OPEN
R1061
OPEN
IC1005
MC14052BF
WF2
C1083
0.01
C1085
OPEN
C1084
0.01
C1086
OPEN
Vcc X2 X1 X0 X3 A B
Y0 Y2 Y3 Y1 INH Vee GND
C1060
0.1
B1009
0Ω
C1056
10/16
C1051
100
/6.3
L1007
100μ
C1052
0.1
IC1003
MM1117XF
GND Vcc H
WF1
C1053
10/16
C1054
OPEN
R1033
OPEN
C1061
OPEN
R1034
OPEN
D1001
OPEN
R1022
3.9k
Q1003
DTC144WUA
R1042
22k
D1007 1SS133
R1043
0Ω
Q1017
OPEN
R1044
OPEN
D1008
OPEN
L1006
100μ
C1039
R1072
10k
Q1022
DTC144WUA
TO 3D/TBC
(Page 4-27)
EE[H]
DOC
FSC
C.KILLER
SW5V
GND
V.REF
LBOX[H]
TRICK
I2C_CLK
SLOW_P
I2C_DATA
D.FF
VP_CTL
WF16
TO VIDEO/N.AUDIO
CN101
(Page 4-6)
CN1001
V.P_CTL
D.FF
I2C_DATA
SLOW_PULSE
I2C_CLK
TRICK
NC
LETER_BOX[H]
V.REF
NC
GND
GND
SW5V[2]
SW5V[2]
CNR_ON[H] (NC)
CK/HISOKAN
C.SYNC(NC)
3.58NTSC[H]
FSC
NC
V.PULSE
PB_COLOR
V.STB[L]
L-1_Y_IN
DOC
L-1_C_IN
REAR1[L]
NC
FRONT[L]
L-1_V_IN
TO VIDEO/N.AUDIO
CN102
(Page 4-6)
CN1002
R1_Y_IN
CCIR[L]
R1_C_IN
WA_DET
F-1_V_IN
GND
TU_V_IN
Y
C
A
B
C
D

NOTE : For VIDEO waveforms, please refer to page 4-31.

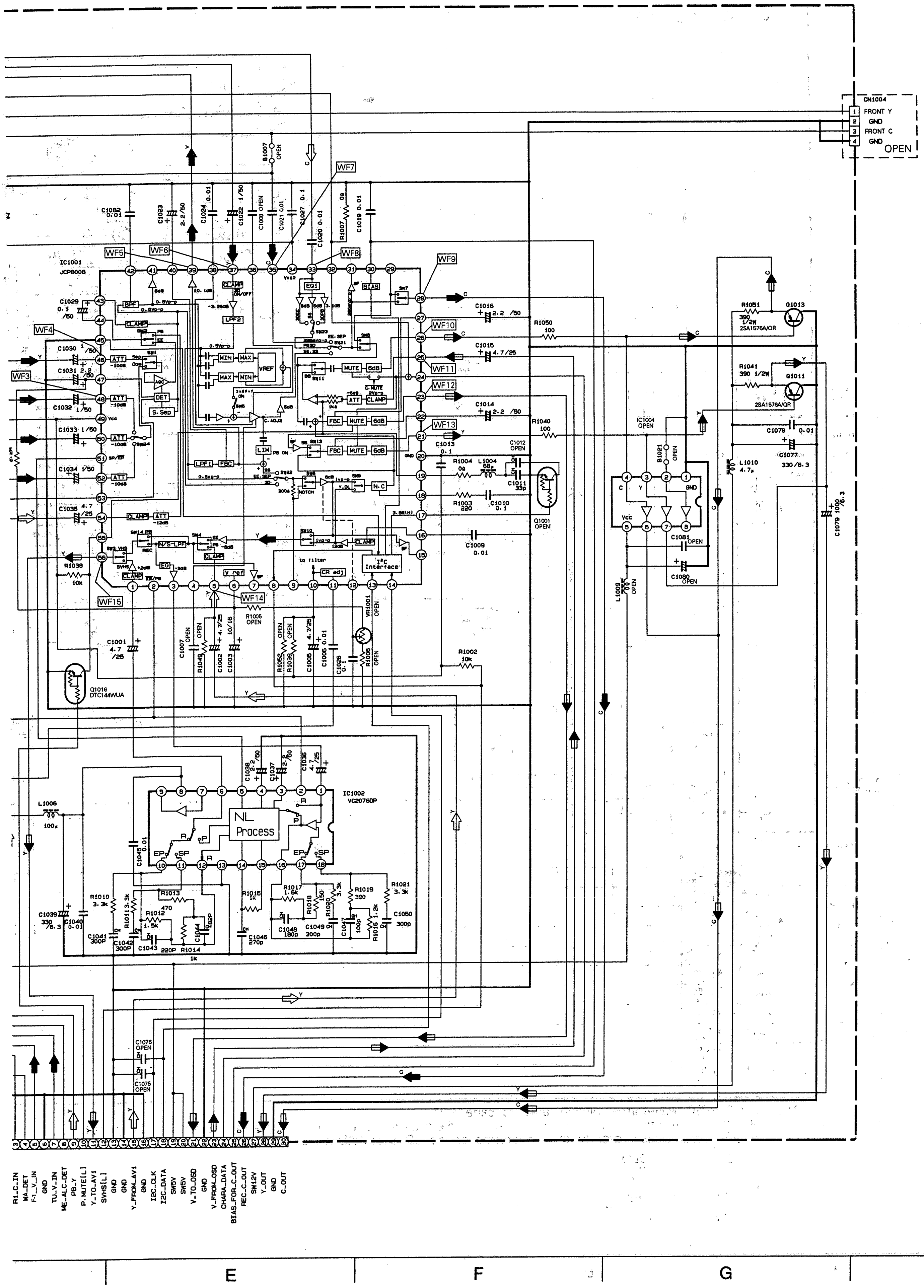

05 3D SVHS (VIDEO)
OPEN
TO JACK CN7192
FRONT_Y
GND
FRONT_C
GND
Q1021 2SA1576A/QR
R1070 390
C1095 0.1
B1007 OPEN
R1007 8.2K
C1019 0.01
C1082 0.01
C1023 2.2 /50
C1024 0.01
C1022 1 /50
C1008 0.1
C1021 0.01
C1027 0.1
C1020 0.01
IC1001 JCP8008
WF3
WF4
WF5
WF6
WF7
WF8
WF9
WF10
WF11
WF12
WF13
WF14
WF15
CLAMP
LPF2
EQ1
BIAS
BPF
ATT
AGC
DET
S.Sep
MIN
MAX
VREF
MUTE
FBC
LIM
LPF1
N.C
NOTCH
N/S-LPF
EQ
V ref
CR adj
I²C Interface
C1029 0.1 /50
C1030 1 /50
C1031 2.2 /50
C1032 1 /50
C1033 1 /50
C1034 1 /50
C1035 4.7 /25
C1016 2.2 /50
C1015 4.7/25
C1014 2.2 /50
C1013 0.1
C1012 OPEN
C1011 33p
C1010 0.1
C1009 0.01
R1050 100
R1040 100
R1004 0Ω
L1004 68µ
R1003 220
L1003 10µ
R1051 390
Q1013 2SA1576A/QR
R1041 390
Q1011 2SA1576A/QR
C1078 0.01
C1077 100/16
L1010 4.7µ
C1079 1000 /6.3
IC1004 OPEN
B1021 OPEN
Vcc
GND
C1081 OPEN
C1080 OPEN
L1009 OPEN
Q1001 OPEN
VR1004 OPEN EE Y LEVEL ADJ
R1006 OPEN
VR1001 OPEN
Q1018 OPEN
Q1020 OPEN
R1008 10K
Q1019 OPEN
VR1001 PB Y LEVEL ADJ
R1002 5.6K
R1005 OPEN
R1038 10K
Q1016 DTC144WUA
C1001 4.7 /25
C1007 0.1
C1002 4.7 /50
C1003 10/16
R1049 4.7M
R1001 OPEN
C1004 OPEN
L1002 OPEN
C1005
R1052 OPEN
C1006 0.01
R1039 390k
C1026 0.1
R1071 220k
C1038 2.2/50
C1037 2.2/50
IC1002 VC2076MP
LP/SP
REC/PB
NL PROCESS
C1036 4.7/25
R1021 3.3k
C1050 300p
R1020 3.3k
C1049 300p
L1006 100µ
R1010 3.3k
R1011 3.3k
C1043 220P
R1012 1.5k
R1013 470
C1044 82P
R1014 1k
R1015 1k
R1018 150
R1017 1.6K
C1048 180p
R1019 390
C1047 100p
R1016 1.2k
C1039 330 /6.3
C1040 0.01
C1041 300P
C1042 300P
C1046 270p
C1045 0.01
C1076 OPEN
C1075 OPEN
R1.C_IN
WA_DET
F1_V_IN
GND
TU_V_IN
ME_ALC_DET
PB_Y
P_MUTE(L)
Y_TO_AV1
SVHS(L)
GND
GND
Y_FROM_AV1
GND
I2C_CLK
I2C_DATA
SW5V
SW5V
V_TO_OSD
GND
V_FROM_OSD
CHARA_DATA
BIAS_FOR_C_OUT
REC_C_OUT
SW12V
Y_OUT
GND
C_OUT

E	F	G

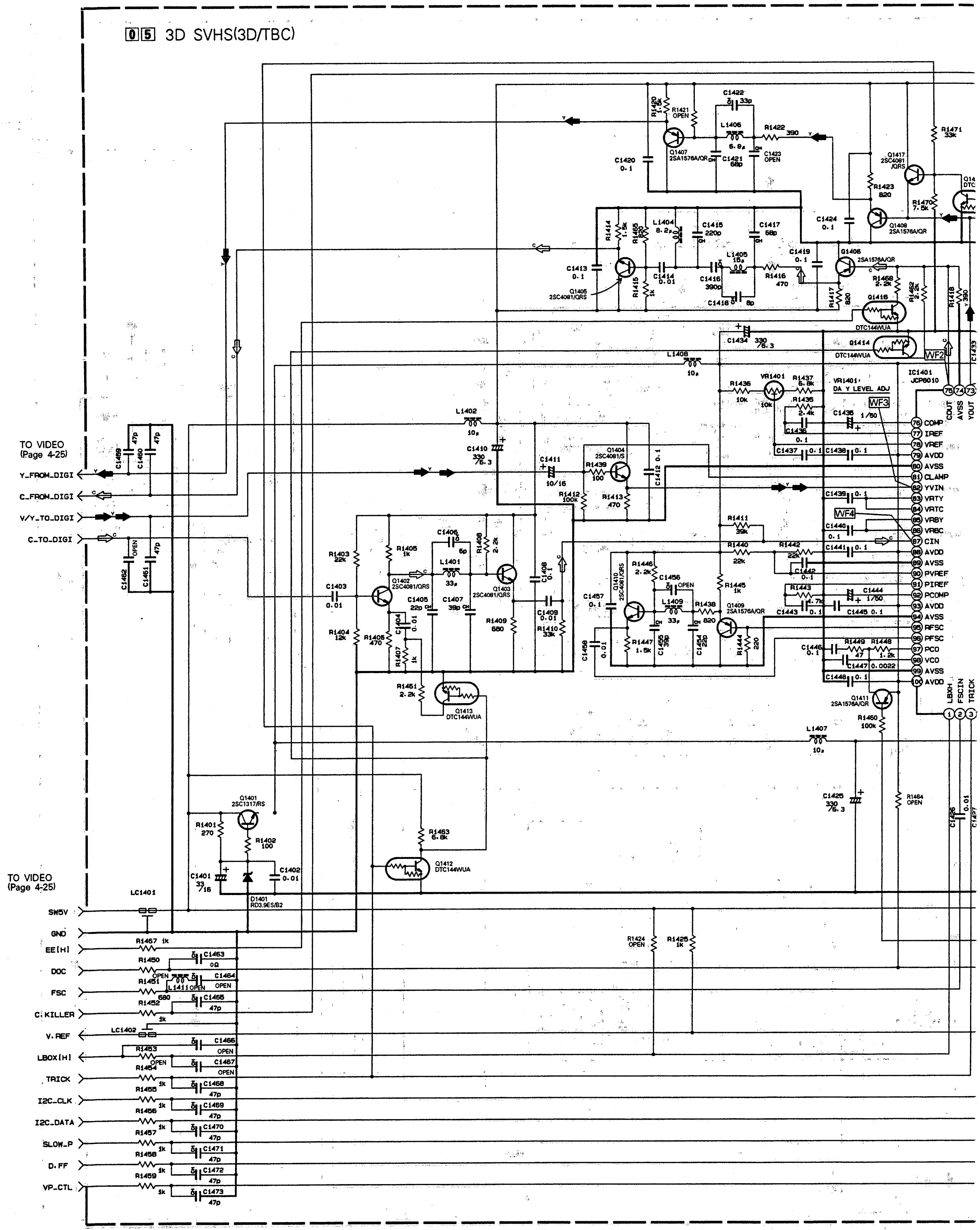
4.11 2D SVHS (VIDEO) SCHEMATIC DIAGRAM (HR-S4500U)


05 2D SVHS (VIDEO)
TO 2D Y/C (Page 4-27)
C_FROM_DIGI
Y_FROM_DIGI
V/Y_TO_DIGI
C_TO_DIGI
TO 2D Y/C (Page 4-27)
PB[H]
CCIR[L]
FSC
3.58NTSC[H]
CNR_ON[H]
SW5V
GND
IC1005 OPEN
IC1003 OPEN
R1062 OPEN
R1061 OPEN
B1008 OPEN
R1035 OPEN
B1009 SHORT
C1063 OPEN
C1065 OPEN
C1064 OPEN
C1060 OPEN
R1033 OPEN
C1061 OPEN
R1034 OPEN
D1001 OPEN
C1052 OPEN
C1056 OPEN
C1051 OPEN
L1007 OPEN
C1053 OPEN
C1054 OPEN
R1022 OPEN
Q1003 OPEN
R1042 OPEN
D1007 OPEN
B1017 OPEN
R1043 OPEN
Q1017 OPEN
R1044 OPEN
D1008 OPEN
B1005 OPEN
B1006 SHORT
R1009 2.2M
C1028 330 /6.3
L1001 22μ
L1006 100μ
C1039 330 /6.3
WF1
WF2
WF3
WF4
WF16
TO VIDEO/N.AUDIO (Page 4-6) CN1001
GND
GND
SW5V[2]
SW5V[2]
CNR_ON[H]
NC
NC
3.58NTSC[H]
FSC
NC
V.PULSE
PB_COLOR
NC
L-1_Y_IN
NC
L-1_C_IN
REAR1[L]
NC
FRONT[L]
L-1_V_IN
TO VIDEO/N.AUDIO (Page 4-6) CN1002
R1_Y_IN
CCIR[L]
R1_C_IN
WA_DET
F-1_V_IN
GND
TU_V_IN
A
B
C
D

NOTE : For VIDEO waveforms, please refer to page 4-31.

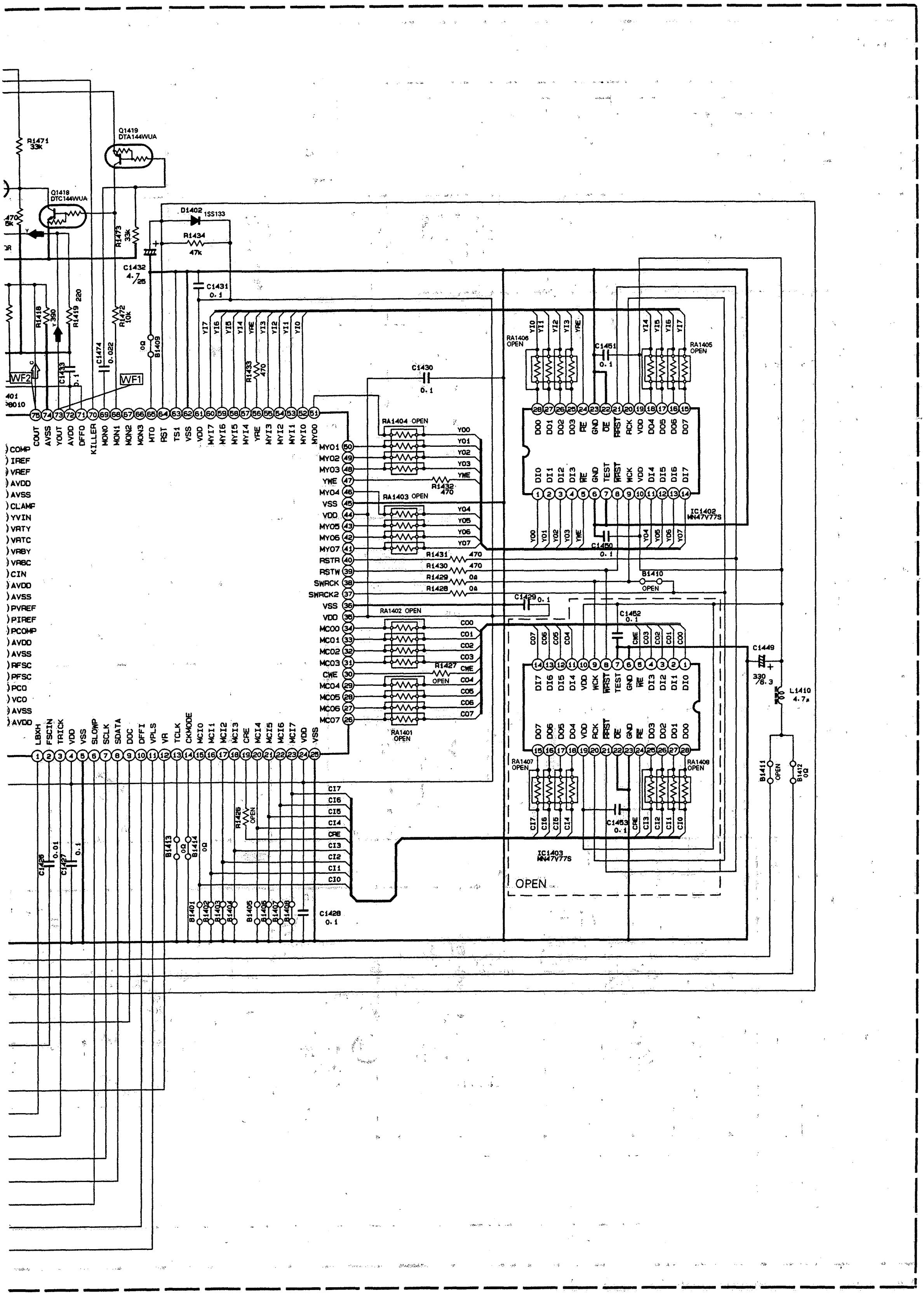

CN1004
FRONT Y
GND
FRONT C
GND
OPEN
IC1001
JCP8008
IC1002
VC2076DP
IC1004
OPEN
Q1013
2SA1576A/QR
Q1011
2SA1576A/QR
Q1016
DTC144WUA
Q1001
OPEN
R1051
390 1/2W
R1041
390 1/2W
R1050
100
R1040
100
R1038
10k
R1002
10k
R1005
OPEN
VR1001
OPEN
B1007
OPEN
B1021
OPEN
L1006
100μ
L1010
4.7μ
L1004
68μ
L1009
OPEN
C1082
0.01
C1023
2.2/50
C1024 0.01
C1022 1/50
C1008 OPEN
C1021 0.01
C1027 0.1
C1020 0.01
R1007 0Ω
C1019 0.01
C1029
0.1
/50
C1030 1/50
C1031 2.2/50
C1032 1/50
C1033 1/50
C1034 1/50
C1035 4.7/25
C1016
2.2 /50
C1015
4.7/25
C1014
2.2 /50
C1013
0.1
C1012
OPEN
C1011
33p
C1010
0.1
R1004
0Ω
R1003
220
C1009
0.01
C1078 0.01
C1077
330/6.3
C1079 1000/6.3
C1081 OPEN
C1080 OPEN
C1001
4.7
/25
C1007 OPEN
R1049
C1002 4.7/25
C1003 10/16
R1062 OPEN
R1039 OPEN
C1005 4.7/25
C1006 0.01
C1025 0.1
R1006 OPEN
C1038 2.2/50
C1037 2.2/50
C1036 4.7/25
C1045 0.01
NL
Process
EP
SP
R
P
R1010
3.3k
R1011 3.3k
R1013
470
R1012
1.5k
C1044
82P
R1014
1k
C1041
300P
C1042
300P
C1043
220P
R1015
1k
C1046
270p
R1017
1.6k
R1018
150
R1020
3.3k
R1019
390
R1016 1.2k
C1047
100p
C1048
180p
C1049
300p
R1021
3.3k
C1050
300p
C1039
330
/6.3
C1040
0.01
C1076
OPEN
C1075
OPEN
WF3
WF4
WF5
WF6
WF7
WF8
WF9
WF10
WF11
WF12
WF13
WF14
WF15
BPF
CLAMP
ATT
AGC
DET
S.Sep
MIN
MAX
VREF
LPF1
LPF2
FBC
LIM
MUTE
6dB
BIAS
EQ1
N.C
NOTCH
Y.DL
N/S-LPF
EQ
Y ref
CR adj
I²C
Interface
to filter
Vcc
Vcc2
Y
C
GND
R1_C_IN
WA_DET
F1_V_IN
GND
TU_V_IN
ME_ALC_DET
PB_Y
P.MUTE[L]
Y_TO_AV1
SVHS[L]
GND
GND
Y_FROM_AV1
GND
I2C_CLK
I2C_DATA
SW5V
SW5V
V_TO_OSD
GND
V_FROM_OSD
CHARA_DATA
BIAS_FOR_C_OUT
REC_C_OUT
SW12V
Y_OUT
GND
C_OUT

4.12 3D SVHS (3D/TBC) SCHEMATIC DIAGRAM (HR-S7500U)


05 3D SVHS(3D/TBC)
TO VIDEO (Page 4-25)
Y_FROM_DIGI
C_FROM_DIGI
V/Y_TO_DIGI
C_TO_DIGI
TO VIDEO (Page 4-25)
SW5V
GND
EE(H)
DOC
FSC
C.KILLER
V.REF
LBOX(H)
TRICK
I2C_CLK
I2C_DATA
SLOW_P
D.FF
VP_CTL
IC1401 JCP8010
VR1401: DA Y LEVEL ADJ
WF2
WF3
WF4
76 COMP
77 IREF
78 VREF
79 AVDD
80 AVSS
81 CLAMP
82 YVIN
83 VRTY
84 VRTC
85 VRBY
86 VRBC
87 CIN
88 AVDD
89 AVSS
90 PVREF
91 PIREF
92 PCOMP
93 AVDD
94 AVSS
95 RFSC
96 PFSC
97 PCO
98 VCO
99 AVSS
100 AVDD
75 COUT
74 AVSS
73 YOUT
1 LBXH
2 FSCIN
3 TRICK
Q1401 2SC1317/RS
Q1402 2SC4081/QRS
Q1403 2SC4081/QRS
Q1404 2SC4081/S
Q1405 2SC4081/QRS
Q1406 2SA1576A/QR
Q1407 2SA1576A/QR
Q1408 2SA1576A/QR
Q1409 2SA1576A/QR
Q1410 2SC4081/QRS
Q1411 2SA1576A/QR
Q1412 DTC144WUA
Q1413 DTC144WUA
Q1414 DTC144WUA
Q1416 DTC144WUA
Q1417 2SC4081/QRS
D1401 RD3.9ES/B2

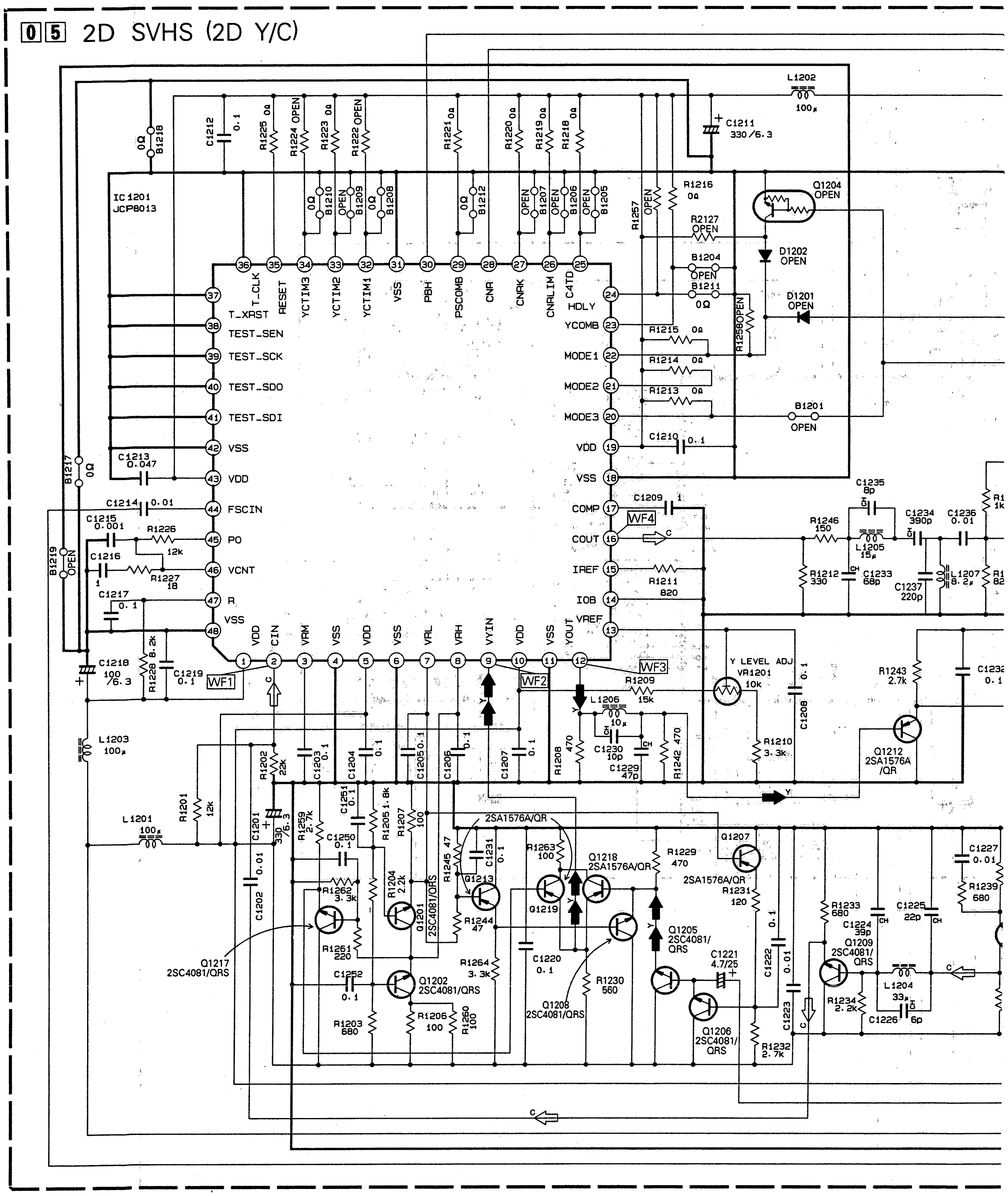
NOTE : For 3D/TBC waveforms, please refetr to page 4-31.
But the waveform points "WF1-WF4" are the shield case inside, therefore the measurement is impossible.
In this case, please refer to the waveforms of the 3D SVHS(VIDEO) as indicated in the following chart.

3D/TBC	VIDEO
WF1	WF6
WF2	WF8
WF3	WF5
WF4	WF16



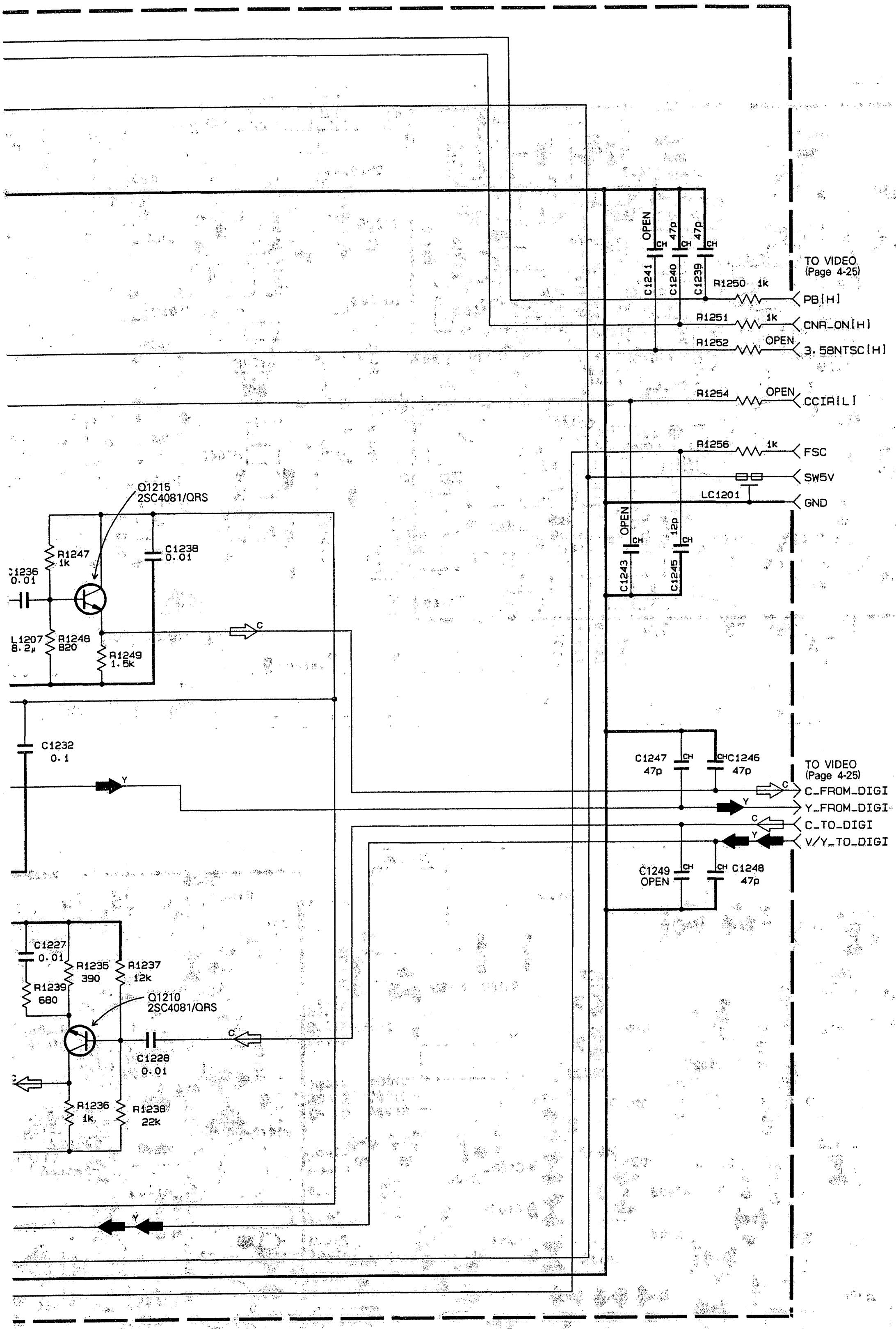
Q1419
DTA144WUA
Q1418
DTC144WUA
R1471
33K
R1473
33k
D1402
1SS133
R1434
47k
C1432
4.7/25
C1431
0.1
R1418
390
R1419
220
R1472
10k
C1474
0.022
C1433
0.1
B1409
0Ω
WF1
WF2
R1433
470
C1430
0.1
RA1404 OPEN
RA1403 OPEN
RA1402 OPEN
RA1401 OPEN
R1432
470
R1431 470
R1430 470
R1429 0Ω
R1428 0Ω
R1427 OPEN
C1429 0.1
RA1406 OPEN
RA1405 OPEN
C1451 0.1
C1450 0.1
C1452 0.1
C1453 0.1
IC1402
MN47V77S
IC1403
MN47V77S
RA1407 OPEN
RA1408 OPEN
B1410 OPEN
C1449
330/6.3
L1410
4.7μ
B1411 OPEN
B1412 0Ω
R1426 OPEN
B1413
B1414 0Ω
C1426 0.01
C1427 0.1
C1428 0.1
B1401
B1402
B1403
B1404
B1405
B1406
B1407
B1408
OPEN
COUT
AVSS
YOUT
AVDD
DFFO
KILLER
MONO
MON1
MON2
MON3
MTO
RST
TS1
VSS
VDD
MYI7
MYI6
MYI5
MYI4
YRE
MYI3
MYI2
MYI1
MYI0
MYO0
MYO1
MYO2
MYO3
YWE
MYO4
MYO5
MYO6
MYO7
RSTR
RSTW
SWRCK
SWRCK2
MCO0
MCO1
MCO2
MCO3
CWE
MCO4
MCO5
MCO6
MCO7
COMP
IREF
VREF
CLAMP
YVIN
VRTY
VRTC
VRBY
VRBC
CIN
PVREF
PIREF
PCOMP
RFSC
PFSC
PCO
VCO
LBXH
FSCIN
TRICK
SLOWP
SCLK
SDATA
DOC
DFFI
VPLS
VR
TCLK
CKMODE
MCI0
MCI1
MCI2
MCI3
CRE
MCI4
MCI5
MCI6
MCI7
YI0
YI1
YI2
YI3
YI4
YI5
YI6
YI7
YO0
YO1
YO2
YO3
YO4
YO5
YO6
YO7
CO0
CO1
CO2
CO3
CO4
CO5
CO6
CO7
CI0
CI1
CI2
CI3
CI4
CI5
CI6
CI7
DO0
DO1
DO2
DO3
DO4
DO5
DO6
DO7
DI0
DI1
DI2
DI3
DI4
DI5
DI6
DI7
RE
OE
GND
RRST
RCK
WE
TEST
WRST
WCK

4.12 2D SVHS (2D Y/C) SCHEMATIC DIAGRAM (HR-S4500U)


05 2D SVHS (2D Y/C)
IC1201
JCP8013
T_CLK
RESET
YCTIM3
YCTIM2
YCTIM1
VSS
PBH
PSCOMB
CNR
CNRK
CNRLIM
C4TD
T_XRST
TEST_SEN
TEST_SCK
TEST_SDO
TEST_SDI
VSS
VDD
FSCIN
PO
VCNT
IR
VSS
HDLY
YCOMB
MODE1
MODE2
MODE3
VDD
VSS
COMP
COUT
IREF
IOB
VREF
VDD
CIN
VRM
VSS
VDD
VSS
VRL
VRH
VYIN
VDD
VSS
YOUT
WF1
WF2
WF3
WF4
L1202 100μ
C1211 330/6.3
Q1204 OPEN
D1202 OPEN
D1201 OPEN
B1201 OPEN
R1216 0Ω
R2127 OPEN
B1204 OPEN
B1211 0Ω
R1215 0Ω
R1214 0Ω
R1213 0Ω
R1257 OPEN
R1258 OPEN
C1210 0.1
C1209 1
R1211 820
C1235 8p
C1234 390p
C1236 0.01
R1246 150
L1205 15μ
R1212 330
C1233 68p
C1237 220p
L1207 8.2μ
Y LEVEL ADJ VR1201 10k
R1209 15k
L1206 10μ
C1230 10p
C1229 47p
R1242 470
R1208 470
R1210 3.3k
C1208 0.1
R1243 2.7k
C1232 0.1
Q1212 2SA1576A/QR
B1218 0Ω
C1212 0.1
R1225 0Ω
R1224 OPEN
R1223 0Ω
R1222 OPEN
R1221 0Ω
R1220 0Ω
R1219 0Ω
R1218 0Ω
B1210 0Ω
B1209 OPEN
B1208 0Ω
B1212 0Ω
B1207 OPEN
B1206 OPEN
B1205 OPEN
B1217 0Ω
B1219 OPEN
C1213 0.047
C1214 0.01
C1215 0.001
R1226 12k
C1216 1
R1227 18
C1217 0.1
C1218 100/6.3
R1228 8.2k
C1219 0.1
L1203 100μ
L1201 100μ
R1201 12k
R1202 22k
C1201 330/6.3
C1202 0.01
C1203 0.1
C1204 0.1
C1205 0.1
C1206 0.1
C1207 0.1
R1259 2.7k
C1251 0.1
C1250 0.1
R1205 1.8k
R1207 100
R1262 3.3k
R1204 2.2k
Q1201 2SC4081/QRS
R1245 47
C1231 0.1
Q1213 2SA1576A/QR
R1244 47
R1261 220
Q1217 2SC4081/QRS
C1252 0.1
Q1202 2SC4081/QRS
R1203 680
R1206 100
R1260 100
R1264 3.3k
R1263 100
Q1218 2SA1576A/QR
Q1219
C1220 0.1
R1230 560
Q1208 2SC4081/QRS
R1229 470
Q1207 2SA1576A/QR
R1231 120
Q1205 2SC4081/QRS
C1221 4.7/25
Q1206 2SC4081/QRS
C1222 0.01
C1223
R1232 2.7k
C1227 0.01
R1239 680
R1233 680
C1224 39p
C1225 22p
Q1209 2SC4081/QRS
L1204 33μ
R1234 2.2k
C1226 6p
Y
C

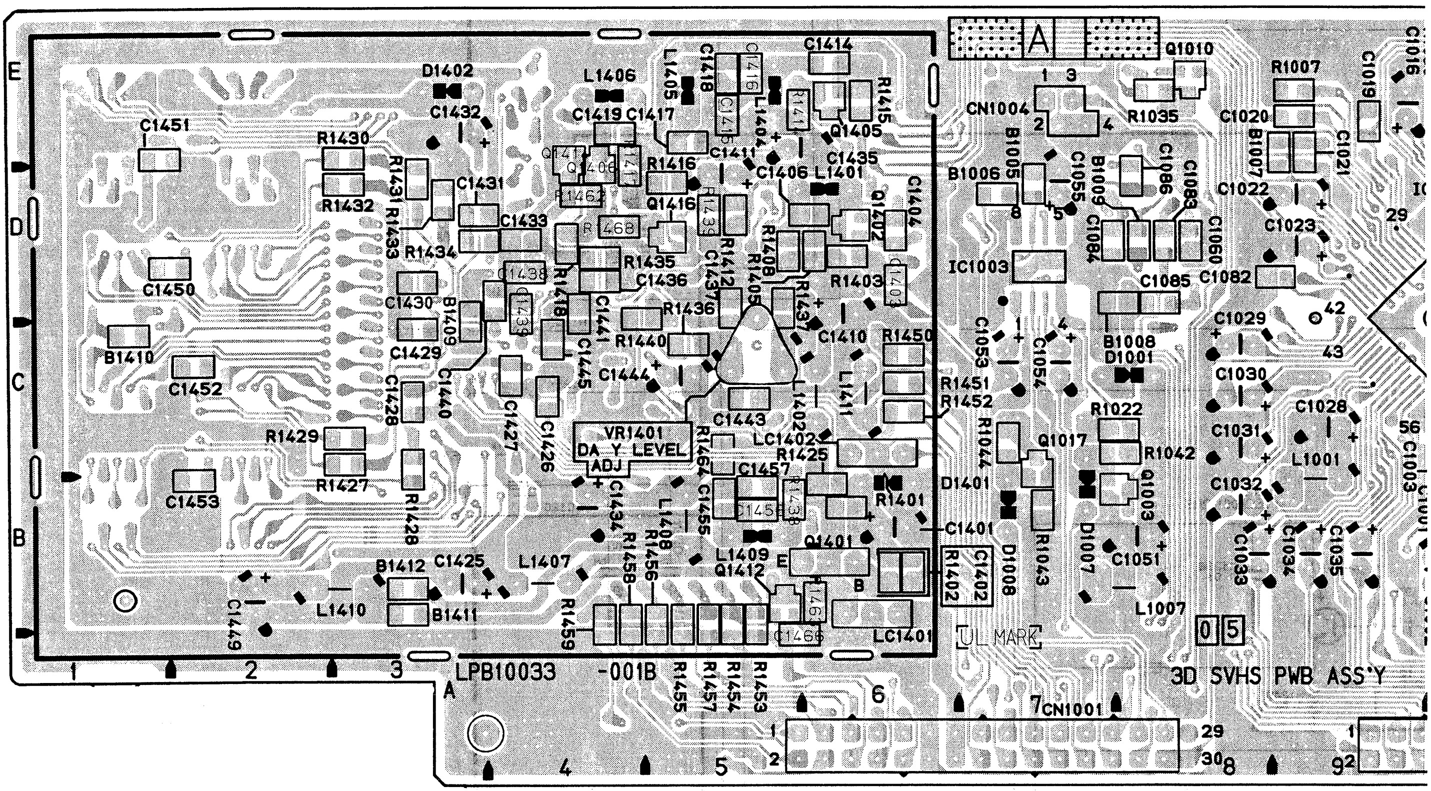
NOTE : For 2D Y/C waveforms, please refetr to page 4-31.
But the waveform points "WF1-WF4" are the shield case inside, therefore the measurement is impossible.
In this case, please refer to the waveforms of the 2D S-VHS(VIDEO) as indicated in the following chart.

2D Y/C	VIDEO
WF1	WF16
WF2	WF5
WF3	WF6
WF4	WF8

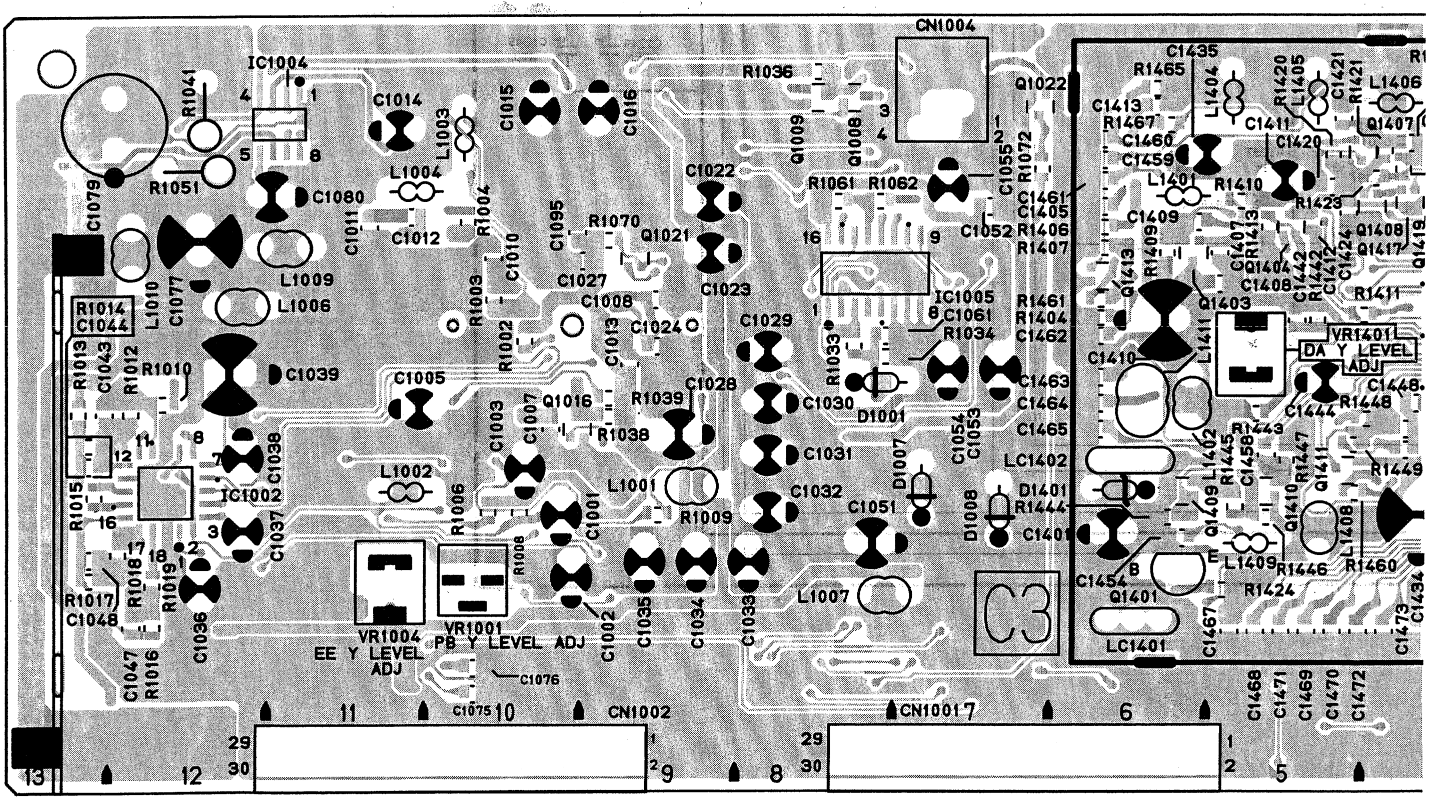

OPEN
47p
47p
CH
C1241
C1240
C1239
R1250 1k
TO VIDEO
(Page 4-25)
PB[H]
R1251 1k
CNR_ON[H]
R1252 OPEN
3.58NTSC[H]
R1254 OPEN
CCIR[L]
R1256 1k
FSC
SW5V
LC1201
GND
OPEN
12p
C1243
C1245
Q1215
2SC4081/QRS
R1247
1k
C1238
0.01
C1236
0.01
L1207
8.2μ
R1248
820
R1249
1.5k
C
C1232
0.1
Y
C1247
47p
C1246
47p
TO VIDEO
(Page 4-25)
C_FROM_DIGI
Y_FROM_DIGI
C_TO_DIGI
V/Y_TO_DIGI
C1249
OPEN
C1248
47p
C1227
0.01
R1235
390
R1237
12k
R1239
680
Q1210
2SC4081/QRS
C1228
0.01
R1236
1k
R1238
22k

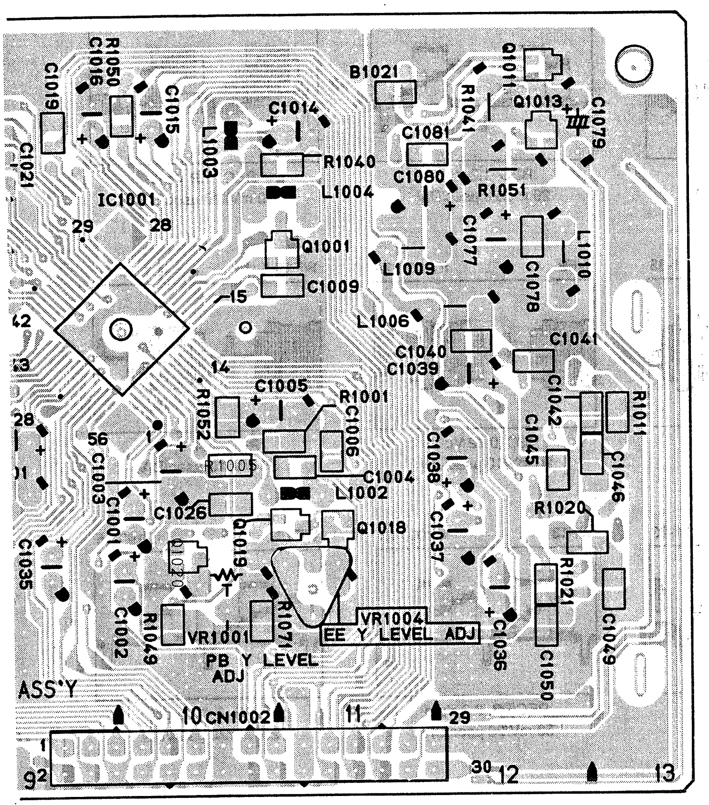
4.13 3D SVHS (3D/TBC) CIRCUIT BOARD (HR-S7500U)

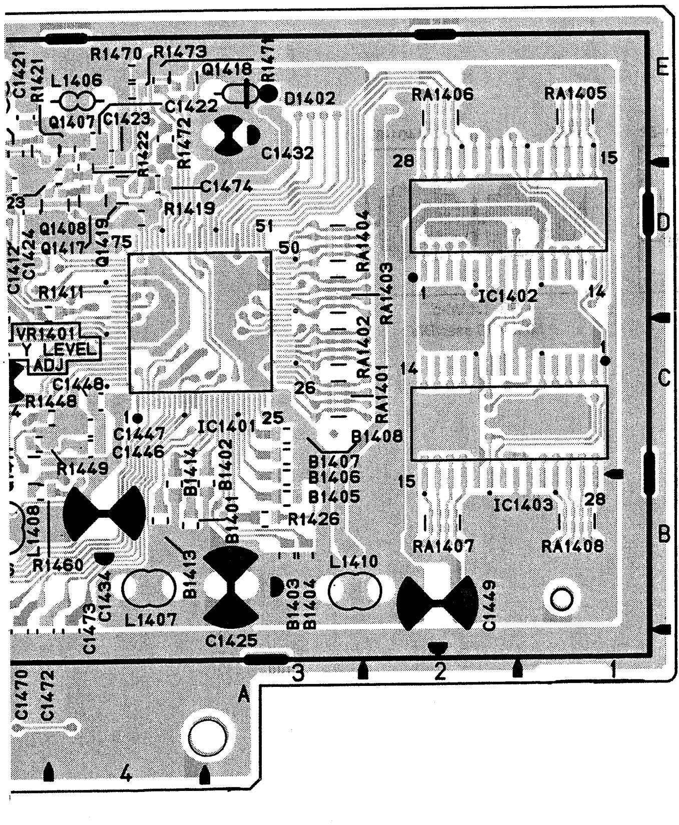
— FOIL SIDE (B) —


E
D
C
B
D1402
L1406
C1432
C1419 C1417
C1414
R1415
Q1405
Q1010
CN1004
R1035
R1007
C1020
C1451
R1430
R1432
R1431 R1433
C1431
C1433
R1434
R1416
Q1416
C1406 L1401
C1435
C1404
Q1402
B1006
B1005
C1055
B1009
C1086
C1083
C1022
C1023
C1084
C1060
IC1003
C1085 C1082
C1450
C1430
B1409
C1429
R1435
C1436
R1436
R1440
C1444
R1403
C1410 R1450
C1053
C1054
B1008
D1001
C1029
B1410
C1452
C1428
C1440
C1427
C1426
VR1401
DA Y LEVEL
ADJ
C1443
LC1402
R1425
C1457
R1401
R1451
R1452
R1044
Q1017
R1022
R1042
C1030
C1031
C1028
L1001
C1032
R1429
R1427
C1453
R1428
C1434
L1408
C1455
D1401
D1007
Q1003
C1401
Q1401
C1051
C1033
C1034
C1035
B1412 C1425
L1407
L1409
Q1412
R1402
C1402
D1008
R1043
L1007
C1449
L1410
B1411
R1459
R1458
R1456
LC1401
UL MARK
05
3D SVHS PWB ASS'Y
1
2
3
LPB10033
-001B
A
R1455
R1457
R1454
R1453
6
7 CN1001
29
30
8
9
4
5

— COMPONENT SIDE (A) —


CN1004
IC1004
R1041
R1051
C1079
C1014
L1003
C015
C016
R1036
Q1009
Q1008
Q1022
C1055
R1072
R1061 R1062
C1080
L1004
C1011
C1012
R1004
C1095
R1070
Q1021
C1022
L1009
L1006
C1077
L1010
R1014
C1044
R1013
C1043
R1012
R1010
C1039
R1003
C1010
R1002
C1027
C1008
C1013
C1024
C1023
C1029
IC1005
C1061
R1034
C1052
C1005
Q1016
R1039
R1038
C1028
C1030
R1033
D1001
C1054
C1053
IC1002
C1038
C1037
L1002
R1006
C1003
C1007
L1001
R1009
C1031
C1032
D1007
C1051
D1008
R1015
R1017
R1018
R1019
C1048
C1036
C1047
R1016
VR1004
EE Y LEVEL
ADJ
VR1001
PB Y LEVEL ADJ
R1008
C1001
C1002
C1035
C1034
C1033
L1007
C3
C1076
C1075
CN1002
CN1001
C1435
R1465
C1413
R1467
C1460
C1459
L1404
L1405
R1420
C1421
R1421
L1406
Q1407
C1411
C1420
L1401
R1410
R1423
C1409
R1409
Q1413
C1407
R1413
Q1404
Q1408
Q1417
C1408
R1411
Q1403
R1461
C1405
R1406
R1407
R1404
C1462
C1410
L1411
VR1401
DA Y LEVEL
ADJ
C1444
R1448
C1463
C1464
C1465
LC1402
D1401
R1444
C1401
C1454
Q1401
B
E
L1409
R1446
R1460
R1424
Q1409
R1445
C1458
R1447
Q1411
Q1410
L1408
R1449
LC1401
C1467
C1473
C1468
C1471
C1469
C1470
C1472
13
12
11
10
9
8
7
6
5
29
30
1
2


R1050
C1016
C1019
B1021
Q1011
R1041
Q1013
C1079
C1015
L1003
C1014
C1081
R1040
C1021
C1080
R1051
IC1001
L1004
29
28
C1077
L1010
Q1001
L1009
C1078
15
C1009
42
L1006
C1041
C1040
C1039
14
C1005
R1001
R1052
C1006
C1042
R1011
56
C1038
C1045
C1046
R1005
C1004
C1003
C1001
C1026
L1002
R1020
Q1019
Q1018
C1037
C1035
R1021
C1049
VR1004
EE Y LEVEL ADJ
C1002
R1049
VR1001
R1071
C1036
C1050
PB Y LEVEL
ADJ
ASS'Y
10 CN1002
11
29
1
9
2
30
12
13


R1470
R1473
C1421
R1421
L1406
Q1418
R1471
D1402
RA1406
RA1405
E
Q1407
C1423
C1422
R1422
R1472
C1432
28
15
C1474
R1419
D
23
Q1408
Q1417
C1412
C1424
Q1419
75
51
50
RA1404
RA1403
R1411
IC1402
1
14
VR1401
Y LEVEL
ADJ
C1448
RA1402
RA1401
26
R1448
C
C1447
C1446
IC1401
25
B1408
B1407
B1406
B1405
R1449
B1414
B1402
B1401
15
IC1403
28
R1426
L1408
RA1407
RA1408
B
R1460
B1413
L1410
B1403
B1404
C1473
C1434
L1407
C1449
C1425
3
2
1
C1470
C1472
A
4

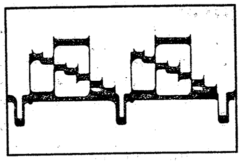
COMPONENT PARTS LOCATION GUIDE (3D SVHS) (HR-S7500U)

REF.NO.	LOCATION		
CAPACITOR			
C1001	A	D	10B
C1002	A	D	10B
C1003	A	D	10C
C1004	B	C	11C
C1005	A	D	10C
C1006	B	C	11C
C1007	A	C	10C
C1008	A	C	9D
C1009	B	C	11D
C1010	A	C	10D
C1011	A	C	11D
C1012	A	C	11D
C1013	A	C	9C
C1014	A	D	11E
C1015	A	D	10E
C1016	A	D	9E
C1019	B	C	9E
C1020	B	C	9E
C1021	B	C	9E
C1022	A	D	9D
C1023	A	D	9D
C1024	A	C	9C
C1026	B	C	10B
C1027	A	C	10D
C1028	A	D	9C
C1029	A	D	8C
C1030	A	D	8C
C1031	A	D	8C
C1032	A	D	8B
C1033	A	D	8B
C1034	A	D	9B
C1035	A	D	9B
C1036	A	D	12B
C1037	A	D	12B
C1038	A	D	12C
C1039	A	D	12C
C1040	B	C	12C
C1041	B	C	12C
C1042	B	C	13C
C1043	A	C	13C
C1044	A	C	13C
C1045	B	C	12C
C1046	B	C	13C
C1047	A	C	12B
C1048	A	C	13B
C1049	B	C	13B
C1050	B	C	12B
C1051	A	D	8B
C1052	A	C	7D
C1053	A	D	7C
C1054	A	D	7C
C1055	A	D	7D
C1060	B	C	8D
C1061	A	C	8C
C1075	A	C	10A
C1076	A	C	10A
C1077	A	D	12D
C1078	B	C	12D
C1079	A	D	12E
C1080	A	D	12D
C1081	B	C	12E
C1082	B	C	9D
C1083	B	C	8D
C1084	B	C	8D
C1085	B	C	8D
C1086	B	C	8D
C1095	A	C	10D
C1401	A	D	6B
C1402	B	C	6B
C1403	B	C	6D
C1404	B	C	6D
C1405	A	C	6D
C1406	B	C	6D
C1407	A	C	5D
C1408	A	C	5D
C1409	A	C	6D
C1410	A	D	6D
C1411	A	D	5D
C1412	A	C	5D
C1413	A	C	6E
C1414	B	C	6E
C1415	B	C	5E
C1416	B	C	5E
C1417	B	C	5E
C1418	B	C	5E
C1419	B	C	4E
C1420	A	C	5D
C1421	A	C	5E
C1422	A	C	4E
C1423	A	C	4E
C1424	A	C	5D
C1425	A	D	3B
C1426	B	C	4C
C1427	B	C	4C
C1428	B	C	3C
C1429	B	C	3C
C1430	B	C	3D
C1431	B	C	3D
C1432	A	D	3E
C1433	B	C	4D
C1434	A	D	4B
C1435	A	D	5E
C1436	B	C	4D
C1437	B	C	5D
C1438	B	C	4D
C1439	B	C	4D
C1440	B	C	4D
C1441	B	C	4D
C1442	A	C	5D
C1443	B	C	5C
C1444	A	D	5C
C1445	B	C	4C
C1446	A	C	4C
C1447	A	C	4C
C1448	A	C	4C
C1449	A	D	2B
C1450	B	C	2D
C1451	B	C	1E
C1452	B	C	2C
C1453	B	C	2B
C1454	A	C	6B
C1455	B	C	5B
C1456	B	C	5B
C1457	B	C	5B
C1458	A	C	5C
C1459	A	C	6E
C1460	A	C	6E
C1461	A	C	6D
C1462	A	C	6C
C1463	A	C	6C
C1464	A	C	6C
C1465	A	C	6C
C1466	B	C	6A
C1467	A	C	5B
C1468	A	C	5B
C1469	A	C	5B
C1470	A	C	5B
C1471	A	C	5B
C1472	A	C	5B
C1473	A	C	4B
C1474	A	C	4D
CONNECTOR			
CN1001	A	D	6A
CN1002	A	D	9A
CN1004	A	D	7E
DIODE			
D1001	A	D	7C
D1007	A	D	7C
D1008	A	D	7B
D1401	A	D	6B
D1402	A	D	3E
IC			
IC1001	B	C	10D
IC1002	A	C	12B
IC1003	B	C	7D
IC1004	A	C	11E
IC1005	A	C	8D
IC1401	A	C	4D
IC1402	A	C	2D
IC1403	A	C	2C
COIL			
L1001	A	D	9B
L1002	A	D	11B
L1003	A	D	10E
L1004	A	D	10D
L1006	A	D	12D
L1007	A	D	8B
L1009	A	D	11D
L1010	A	D	12D
L1401	A	D	6D
L1402	A	D	6C
L1404	A	D	5E
L1405	A	D	5E
L1406	A	D	4E
L1407	A	D	4B
L1408	A	D	5B
L1409	A	D	5B
L1410	A	D	3B
L1411	A	D	6C
TRANSISTOR			
Q1001	B	C	11D
Q1003	B	C	8B
Q1008	A	C	8E
Q1009	A	C	8E
Q1010	B	C	8E
Q1011	B	C	12E
Q1013	B	C	12E
Q1016	A	C	10C
Q1017	B	C	7C
Q1018	B	C	11B
Q1019	B	C	11B
Q1020	B	C	10B
Q1021	A	C	9D
Q1022	A	C	7E
Q1401	A	D	6B
Q1402	B	C	6D
Q1403	A	C	6D
Q1404	A	C	5D
Q1405	B	C	6E
Q1406	B	C	4D
Q1407	A	C	5E
Q1408	A	C	4D
Q1409	A	C	6B
Q1410	A	C	5B
Q1411	A	C	5C
Q1412	B	C	5B
Q1413	A	C	6D
Q1414	B	C	4D
Q1416	B	C	5D
Q1417	A	C	4D
Q1418	A	C	4E
Q1419	A	C	4D
RESISTOR			
R1001	B	C	11C
R1002	A	C	10C
R1003	A	C	10D
R1004	A	C	10D
R1005	B	C	10C
R1006	A	C	10B
R1007	B	C	9E
R1008	A	C	10B
R1009	A	C	9B
R1010	A	C	12C
R1011	B	C	13C
R1012	A	C	12C
R1013	A	C	13C
R1014	A	C	13C
R1015	A	C	13B
R1016	A	C	12B
R1017	A	C	13B
R1018	A	C	12B
R1019	A	C	12B
R1020	B	C	13B
R1021	B	C	12B
R1022	B	C	8C
R1033	A	C	8C
R1034	A	C	8C
R1035	B	C	8E
R1036	A	C	8E
R1038	A	C	9C
R1039	A	C	9C
R1040	B	C	11E
R1041	A	D	12E
R1042	B	C	8C
R1043	B	C	7B
R1044	B	C	7C
R1049	B	C	10B
R1050	B	C	10E
R1051	A	D	12E
R1052	B	C	10C
R1061	A	C	8D
R1062	A	C	8D
R1070	A	C	9D
R1071	B	C	10B
R1072	A	C	7E
R1401	B	C	6B
R1402	B	C	6B
R1403	B	C	6D
R1404	A	C	6D
R1405	B	C	6D
R1406	A	C	6D
R1407	A	C	6D
R1408	B	C	5D
R1409	A	C	6D
R1410	A	C	5D
R1411	A	C	5D
R1412	B	C	5D
R1413	A	C	5D
R1414	B	C	6E
R1415	B	C	6E
R1416	B	C	5D
R1417	B	C	4D
R1418	B	C	4D
R1419	A	C	4D
R1420	A	C	5E
R1421	A	C	4E
R1422	A	C	4E
R1423	A	C	4D
R1424	A	C	5B
R1425	B	C	6B
R1426	A	C	3B
R1427	B	C	3C
R1428	B	C	3C
R1429	B	C	3C
R1430	B	C	3E
R1431	B	C	3D
R1432	B	C	3D
R1433	B	C	3D
R1434	B	C	3D
R1435	B	C	4D
R1436	B	C	5C
R1437	B	C	5D
R1438	B	C	5B
R1439	B	C	5D
R1440	B	C	5D
R1442	A	C	5D
R1443	A	C	5C
R1444	A	C	6B
R1445	A	C	5B
R1446	A	C	5B
R1447	A	C	5C
R1448	A	C	4C
R1449	A	C	5C
R1450	B	C	6C
R1451	B	C	6C
R1452	B	C	6C
R1453	B	C	5B
R1454	B	C	5B
R1455	B	C	5B
R1456	B	C	5B
R1457	B	C	5B
R1458	B	C	4B
R1459	B	C	4B
R1460	A	C	5B
R1461	A	C	6D
R1462	B	C	4D
R1463	B	C	6B
R1464	B	C	5C
R1465	A	C	6E
R1467	A	C	6E
R1468	B	C	4D
R1470	A	C	4E
R1471	A	C	4E
R1472	A	C	4E
R1473	A	C	4E
OTHER			
LC1401	A	D	6B
LC1402	A	D	6C
RA1401	A	C	3C
RA1402	A	C	3C
RA1403	A	C	3D
RA1404	A	C	3D
RA1405	A	C	1E
RA1406	A	C	2E
RA1407	A	C	2B
RA1408	A	C	1B
VR1001	A	D	10B
VR1004	A	D	11B
VR1401	A	D	5C

WAVEFORMS (HR-S7500U)

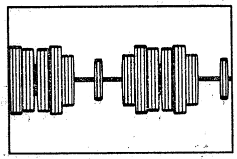
— VIDEO —

WF1 IC1003-1



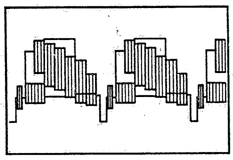
REC 1.1 p-p
20 mV/20 µsec/DIV

WF2 IC1005-12



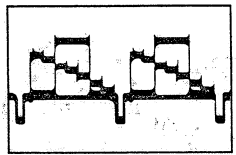
REC 0.68 Vp-p
20 mV/20 µsec/DIV

WF3 IC1001-48



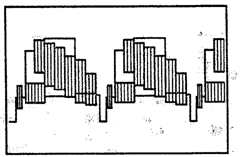
REC 1.1 Vp-p
20 mV/20 µsec/DIV

WF4 IC1001-46



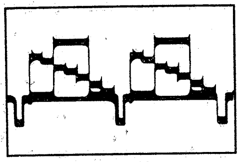
REC 1.2 Vp-p
20 mV/20 µsec/DIV

WF5 IC1001-39



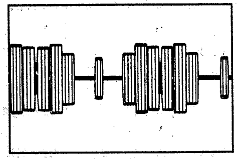
REC 1.9 Vp-p
50 mV/20 µsec/DIV

WF6 IC1001-37



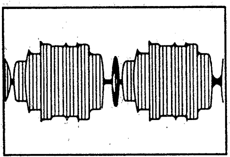
REC 0.9 Vp-p
20 mV/20 µsec/DIV

WF7 IC1001-35



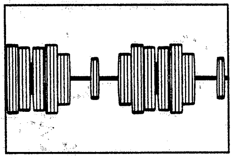
REC 0.76 Vp-p
20 mV/10 µsec/DIV

WF8 IC1001-33



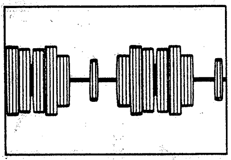
PB 0.38 Vp-p
10 mV/10 µsec/DIV

WF9 IC1001-28



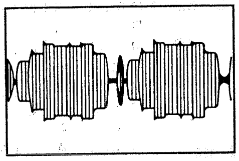
REC 0.72 Vp-p
20 mV/10 µsec/DIV

WF10-1 IC1001-26



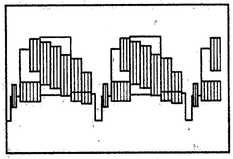
REC 1.4 Vp-p
50 mV/10 µsec/DIV

WF10-2 IC1001-26



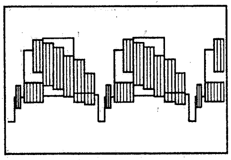
PB 1.1 Vp-p
20 mV/10 µsec/DIV

WF11 IC1001-25



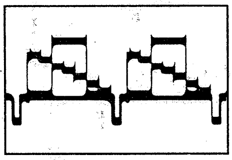
REC/PB 2.2 Vp-p
50 mV/20 µsec/DIV

WF12 IC1001-23



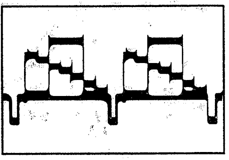
REC/PB 2.3 Vp-p
50 mV/20 µsec/DIV

WF13 IC1001-21



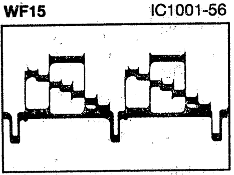
REC/PB 2.2 Vp-p
50 mV/20 µsec/DIV

WF14 IC1001-5



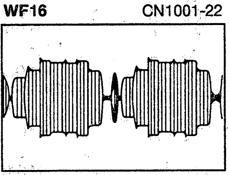
PB 0.6 Vp-p
20 mV/20 µsec/DIV

WF15 IC1001-56



REC/PB 0.64 Vp-p
20 mV/20 µsec/DIV

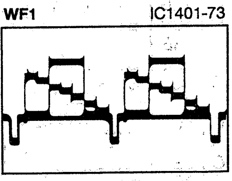
WF16 CN1001-22



PB 0.67 Vp-p
20 mV/10 µsec/DIV

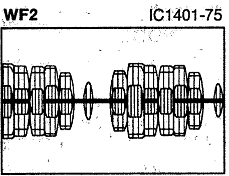
— 3D/TBC —

WF1 IC1401-73



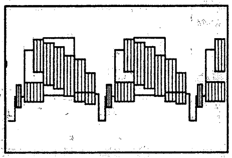
REC 0.9 Vp-p
20 mV/20 µsec/DIV

WF2 IC1401-75



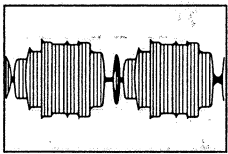
PB 1.0 Vp-p
20 mV/10 µsec/DIV

WF3 IC1401-82



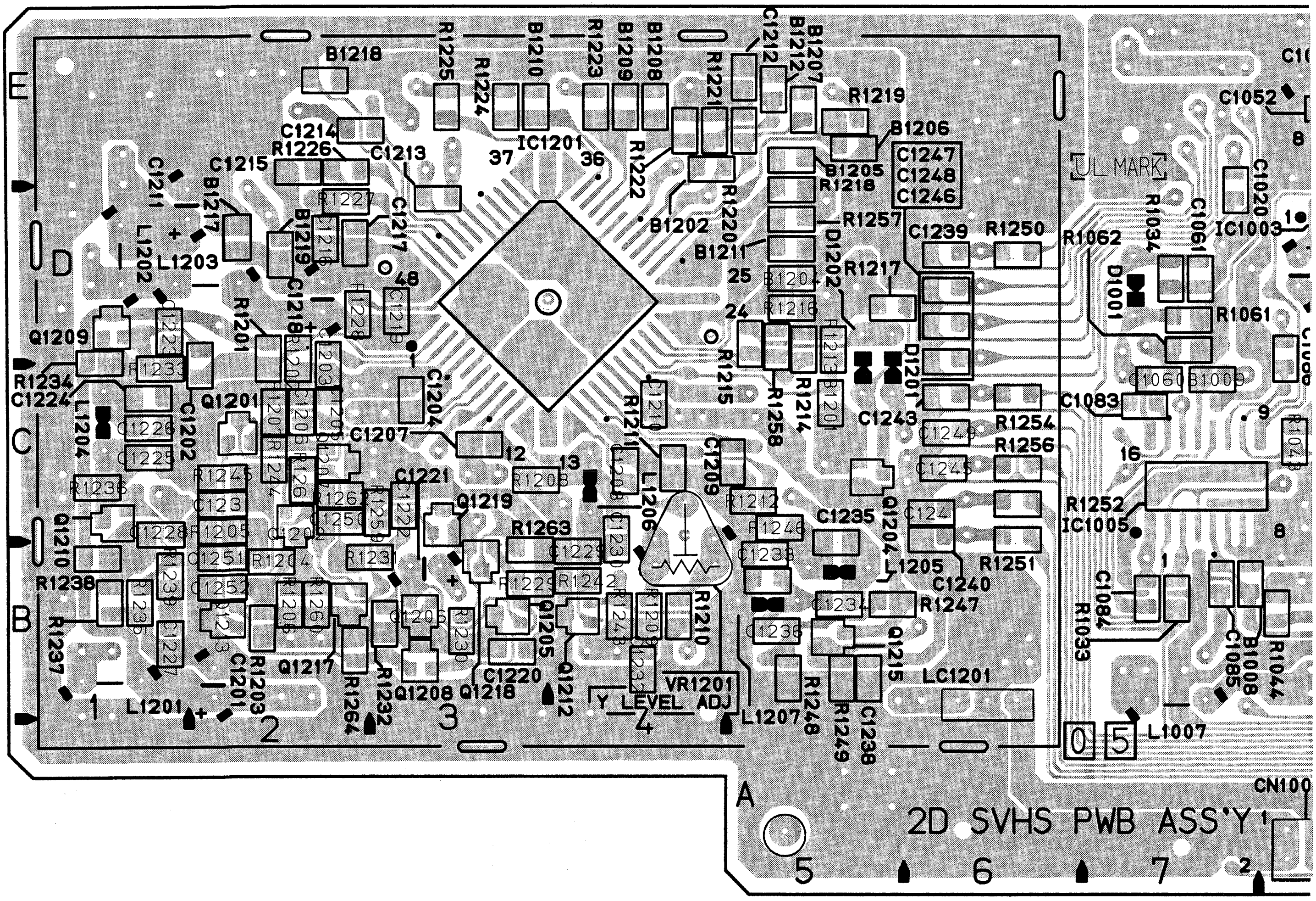
REC 1.9 Vp-p
50 mV/20 µsec/DIV

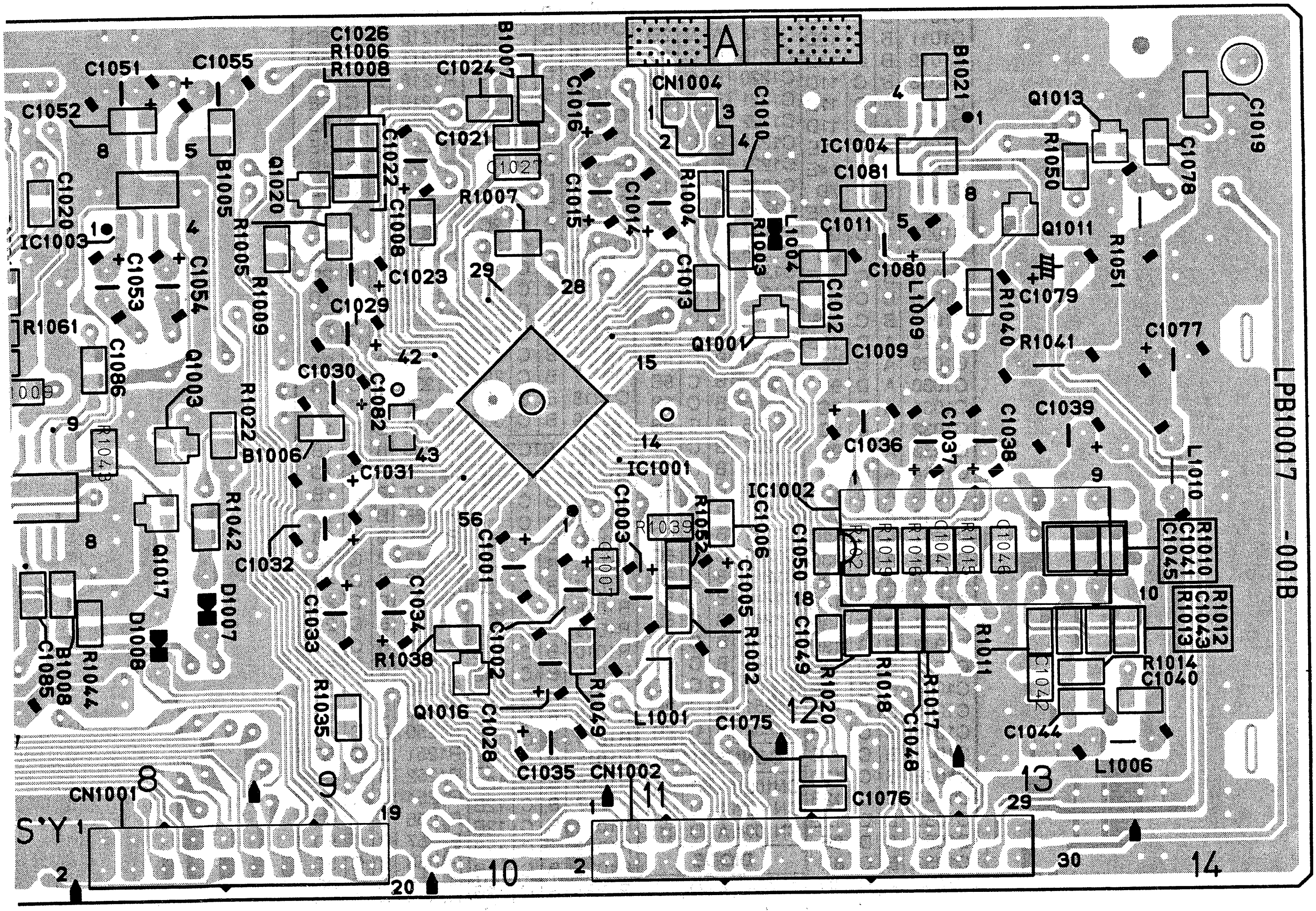
WF4 IC1401-87



PB 1.4 Vp-p
50 mV/10 µsec/DIV

4.13 2D SVHS (2D Y/C) CIRCUIT BOARD (HR-S4500U)


B1218
R1225
R1224
B1210
R1223
B1209
B1208
R1221
C1212
B1212
B1207
R1219
B1206
C1052
E
C1214
R1226
C1213
C1215
37
IC1201
36
R1222
B1205
R1218
C1247
C1248
C1246
UL MARK
R1034
C1061
C1020
IC1003
C1211
B1217
R1227
C1217
B1219
R1216
B1202
R1220
R1257
C1239
R1250
R1062
D1001
L1202
L1203
D
48
C1218
B1211
25
B1204
D1202
R1217
R1061
R1201
R1228
C1219
24
R1216
R1213
Q1209
R1233
C1203
R1215
R1258
R1214
B1201
D1201
R1234
C1224
L1204
C1226
C1202
Q1201
C1204
R1211
C1210
C1243
C1060
B1009
C1083
9
C
C1225
R1207
C1206
C1207
12
13
C1249
R1254
R1256
16
R1236
R1245
R1262
C1221
R1208
L1206
C1209
C1245
R1252
IC1005
8
Q1210
C1228
R1205
C1250
Q1219
R1212
R1246
C1235
Q1204
R1263
C1229
C1230
C1233
C1240
R1251
R1238
C1251
R1204
R1231
R1229
R1242
L1205
C1084
R1033
B
R1237
R1239
C1252
C1227
R1206
R1260
Q1206
R1230
R1243
R1209
R1210
C1234
R1247
C1085
B1008
R1044
Q1205
Q1212
C1236
Q1215
1
L1201
C1201
R1203
Q1217
R1264
R1232
Q1208
Q1218
C1220
VR1201
Y LEVEL ADJ
L1207
R1248
R1249
C1238
LC1201
L1007
2
3
4
0 5
A
CN100
2D SVHS PWB ASS'Y
5
6
7


C1026
R1006
R1008
C1051
C1055
C1052
C1024
B1007
C1016
CN1004
C1010
B1021
Q1013
C1019
C1021
C1022
Q1020
B1005
C1020
IC1003
C1053
C1054
R1005
R1009
C1008
C1023
R1007
C1015
C1014
R1004
R1003
L1004
C1013
IC1004
C1081
C1011
C1080
L1009
C1012
Q1001
C1009
R1050
Q1011
R1051
C1078
R1040
C1079
R1041
C1077
C1029
R1061
C1086
Q1003
R1022
C1030
C1082
B1006
C1031
IC1001
C1036
C1037
C1038
C1039
L1010
LPB10017 -001B
R1042
Q1017
D1007
D1008
C1032
C1033
C1034
R1038
C1001
C1003
R1039
R1052
C1006
C1005
IC1002
C1050
C1049
R1010
C1041
C1045
R1012
C1043
R1013
C1085
B1008
R1044
R1035
Q1016
C1002
C1028
R1049
L1001
R1002
C1075
R1020
R1018
R1017
C1048
R1011
R1014
C1040
C1044
C1042
L1006
C1035
CN1002
C1076
CN1001
S'Y
A
8
9
10
11
12
13
14
1
2
19
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43
15
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56
18

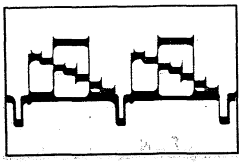
COMPONENT PARTS LOCATION GUIDE <2D S-VHS> (HR-S4500U)

REF.NO.	LOCATION		
CAPACITOR			
C1001	A	D	10B
C1002	A	D	10B
C1003	A	D	11B
C1005	A	D	11B
C1006	B	C	11C
C1007	B	C	11B
C1008	B	C	9D
C1009	B	C	12D
C1010	B	C	11D
C1011	B	C	12D
C1012	B	C	12D
C1013	B	C	11D
C1014	A	D	11D
C1015	A	D	11D
C1016	A	D	11E
C1019	B	C	14E
C1020	B	C	7D
C1021	B	C	10E
C1022	A	D	9E
C1023	A	D	9D
C1024	B	C	10E
C1026	B	C	9E
C1027	B	C	10E
C1028	A	D	10B
C1029	A	D	9D
C1030	A	D	9C
C1031	A	D	9C
C1032	A	D	9C
C1033	A	D	9B
C1034	A	D	9B
C1035	A	D	10A
C1036	A	D	12C
C1037	A	D	12C
C1038	A	D	13C
C1039	A	D	13C
C1040	B	C	14B
C1041	B	C	13B
C1042	B	C	13B
C1043	B	C	13B
C1044	B	C	13B
C1045	B	C	13B
C1046	B	C	13B
C1047	B	C	12B
C1048	B	C	12B
C1049	B	C	12B
C1050	B	C	12B
C1051	A	D	8E
C1052	B	C	8E
C1053	A	D	8D
C1054	A	D	8D
C1055	A	D	8E
C1060	B	C	7C
C1061	B	C	7D
C1075	B	C	12A
C1076	B	C	12A
C1077	A	D	14D
C1078	B	C	14E
C1079	A	D	13D
C1080	A	D	12D
C1081	B	C	12D
C1082	B	C	9C
C1083	B	C	7C
C1084	B	C	7B
C1085	B	C	7B
C1086	B	C	8D
C1201	A	D	2B
C1202	B	C	2C
C1203	B	C	2C
C1204	B	C	3C
C1205	B	C	2C
C1206	B	C	2C
C1207	B	C	3C
C1208	B	C	4C
C1209	B	C	5C
C1210	B	C	4C
C1211	A	D	2D
C1212	B	C	5E
C1213	B	C	3D
C1214	B	C	2E
C1215	B	C	2E
C1216	B	C	2D
C1217	B	C	2D
C1218	A	D	2D
C1219	B	C	3D
C1220	B	C	3B
C1221	A	D	3B
C1222	B	C	3C
C1223	B	C	1D
C1224	B	C	1C
C1225	B	C	1C
C1226	B	C	1C
C1227	B	C	1B
C1228	B	C	1C
C1229	B	C	4B
C1230	B	C	4C
C1231	B	C	2C
C1232	B	C	4B
C1233	B	C	5B
C1234	B	C	5B
C1235	B	C	5B
C1236	B	C	5B
C1237	B	C	5B
C1238	B	C	5B
C1239	B	C	6D
C1240	B	C	6C
C1241	B	C	6C
C1243	B	C	6C
C1245	B	C	6C
C1246	B	C	6D
C1247	B	C	6D
C1248	B	C	6D
C1249	B	C	6C
C1250	B	C	2C
C1251	B	C	2B
C1252	B	C	2B
CONNECTOR			
CN1001	A	D	8A
CN1002	A	D	11A
CN1004	A	D	11E
DIODE			
D1001	A	D	7D
D1007	A	D	8B
D1008	A	D	8B
D1201	A	D	5C
D1202	A	D	5C
IC			
IC1001	B	C	10C
IC1002	A	D	12C
IC1003	B	C	8E
IC1004	B	C	12E
IC1005	B	C	7C
IC1201	B	C	4D
COIL			
L1001	A	D	11B
L1004	A	D	12D
L1006	A	D	14A
L1007	A	D	7B
L1009	A	D	12D
L1010	A	D	14C
L1201	A	D	1B
L1202	A	D	1D
L1203	A	D	2D
L1204	A	D	1C
L1205	A	D	5B
L1206	A	D	4C
L1207	A	D	5B
TRANSISTOR			
Q1001	B	C	11D
Q1003	B	C	8C
Q1011	B	C	13D
Q1013	B	C	13E
Q1016	B	C	10B
Q1017	B	C	8C
Q1020	B	C	9E
Q1201	B	C	2C
Q1202	B	C	2C
Q1204	B	C	5C
Q1205	B	C	3B
Q1206	B	C	3B
Q1207	B	C	2C
Q1208	B	C	3B
Q1209	B	C	1D
Q1210	B	C	1C
Q1212	B	C	4B
Q1213	B	C	2B
Q1215	B	C	5B
Q1217	B	C	2B
Q1218	B	C	3B
Q1219	B	C	3C
RESISTOR			
R1002	B	C	11B
R1003	B	C	11D
R1004	B	C	11D
R1005	B	C	9D
R1006	B	C	9E
R1007	B	C	10D
R1008	B	C	9E
R1009	B	C	9D
R1010	B	C	13B
R1011	B	C	13B
R1012	B	C	13B
R1013	B	C	13B
R1014	B	C	13B
R1015	B	C	13B
R1016	B	C	12B
R1017	B	C	12B
R1018	B	C	12B
R1019	B	C	12B
R1020	B	C	12B
R1021	B	C	12B
R1022	B	C	8C
R1033	B	C	7B
R1034	B	C	7D
R1035	B	C	9B
R1038	B	C	10B
R1039	B	C	11C
R1040	B	C	13D
R1041	A	D	13C
R1042	B	C	8C
R1043	B	C	8C
R1044	B	C	8B
R1049	B	C	10B
R1050	B	C	13E
R1051	A	D	14D
R1052	B	C	11B
R1061	B	C	7D
R1062	B	C	7D
R1201	B	C	2D
R1202	B	C	2D
R1203	B	C	2B
R1204	B	C	2B
R1205	B	C	2C
R1206	B	C	2B
R1207	B	C	2C
R1208	B	C	3C
R1209	B	C	4B
R1210	B	C	4B
R1211	B	C	4C
R1212	B	C	5C
R1213	B	C	5D
R1214	B	C	5D
R1215	B	C	5D
R1216	B	C	5D
R1217	B	C	5D
R1218	B	C	5D
R1219	B	C	5E
R1220	B	C	5E
R1221	B	C	4E
R1222	B	C	4E
R1223	B	C	4E
R1224	B	C	3E
R1225	B	C	3E
R1226	B	C	2E
R1227	B	C	2D
R1228	B	C	2D
R1229	B	C	3B
R1230	B	C	3B
R1231	B	C	3B
R1232	B	C	3B
R1233	B	C	1C
R1234	B	C	1D
R1235	B	C	1B
R1236	B	C	1C
R1237	B	C	1B
R1238	B	C	1B
R1239	B	C	1B
R1242	B	C	4B
R1243	B	C	4B
R1244	B	C	2C
R1245	B	C	2C
R1246	B	C	5C
R1247	B	C	5B
R1248	B	C	5B
R1249	B	C	5B
R1250	B	C	6D
R1251	B	C	6C
R1252	B	C	6C
R1254	B	C	6C
R1256	B	C	6C
R1257	B	C	5D
R1258	B	C	5D
R1259	B	C	3C
R1260	B	C	2B
R1261	B	C	2C
R1262	B	C	2C
R1263	B	C	3B
R1264	B	C	2B
OTHERS			
LC1201	A	D	6B
VR1201	A	D	4C

WAVEFORMS (HR-S4500U)

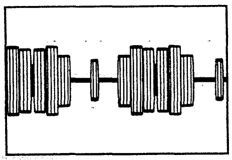
— VIDEO —

WF1 CN1001-14



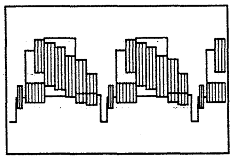
REC 1.0 p-p
20 mV/20 μsec/DIV

WF2 CN1001-16



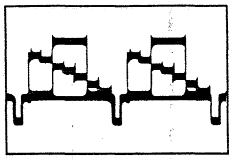
PB 0.68 Vp-p
20 mV/20 μsec/DIV

WF3 IC1001-48



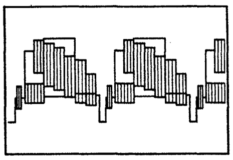
REC 1.0 Vp-p
20 mV/20 μsec/DIV

WF4 IC1001-46



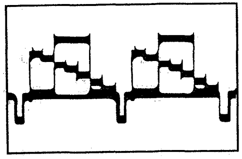
REC 1.0 Vp-p
20 mV/20 μsec/DIV

WF5 IC1001-39



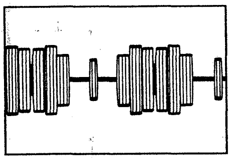
REC 1.7 Vp-p
50 mV/20 μsec/DIV

WF6 IC1001-37



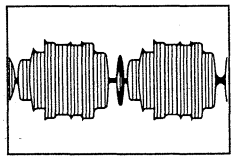
REC 0.8 Vp-p
20 mV/20 μsec/DIV

WF7 IC1001-35



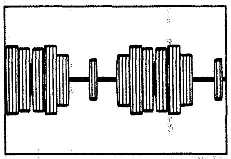
REC 0.62 Vp-p
20 mV/10 μsec/DIV

WF8 IC1001-33



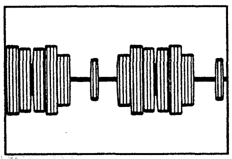
PB 0.4 Vp-p
10 mV/10 μsec/DIV

WF9 IC1001-28



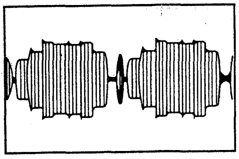
REC 0.68 Vp-p
20 mV/10 μsec/DIV

WF10-1 IC1001-26



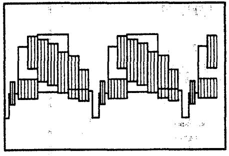
REC 1.4 Vp-p
50 mV/10 μsec/DIV

WF10-2 IC1001-26



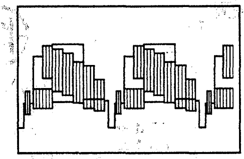
PB 1.1 Vp-p
20 mV/10 μsec/DIV

WF11-1 IC1001-25



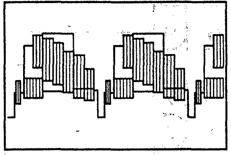
REC 2.1 Vp-p
0.1 V/20 μsec/DIV

WF11-2 IC1001-25



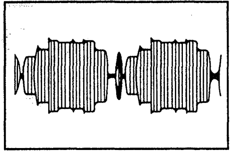
PB 2.3 Vp-p
0.1 V/20 μsec/DIV

WF12 IC1001-23



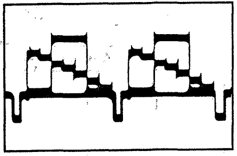
REC/PB 2.2 Vp-p
0.1 V/20 μsec/DIV

WF13 IC1001-21



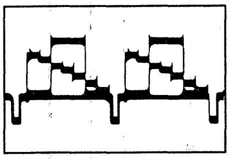
REC/PB 2.1 Vp-p
0.1 V/20 μsec/DIV

WF14 IC1001-5



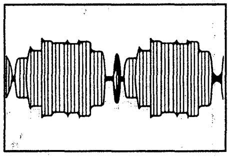
PB 0.52 Vp-p
20 mV/20 μsec/DIV

WF15 IC1001-56



REC/PB 0.52 Vp-p
20 mV/20 μsec/DIV

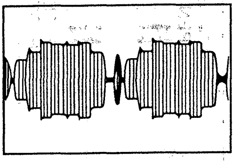
WF16 CN1001-12



PB 0.66 Vp-p
20 mV/10 μsec/DIV

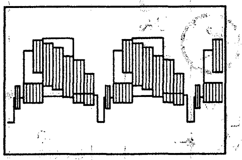
— 2D Y/C —

WF1 IC1201-2



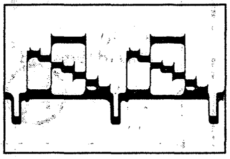
PB 1.6 Vp-p
50 mV/10 μsec/DIV

WF2 IC1201-9



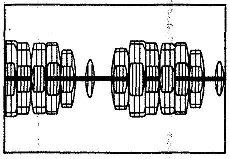
REC 1.7 Vp-p
50 mV/20 μsec/DIV

WF3 IC1201-12



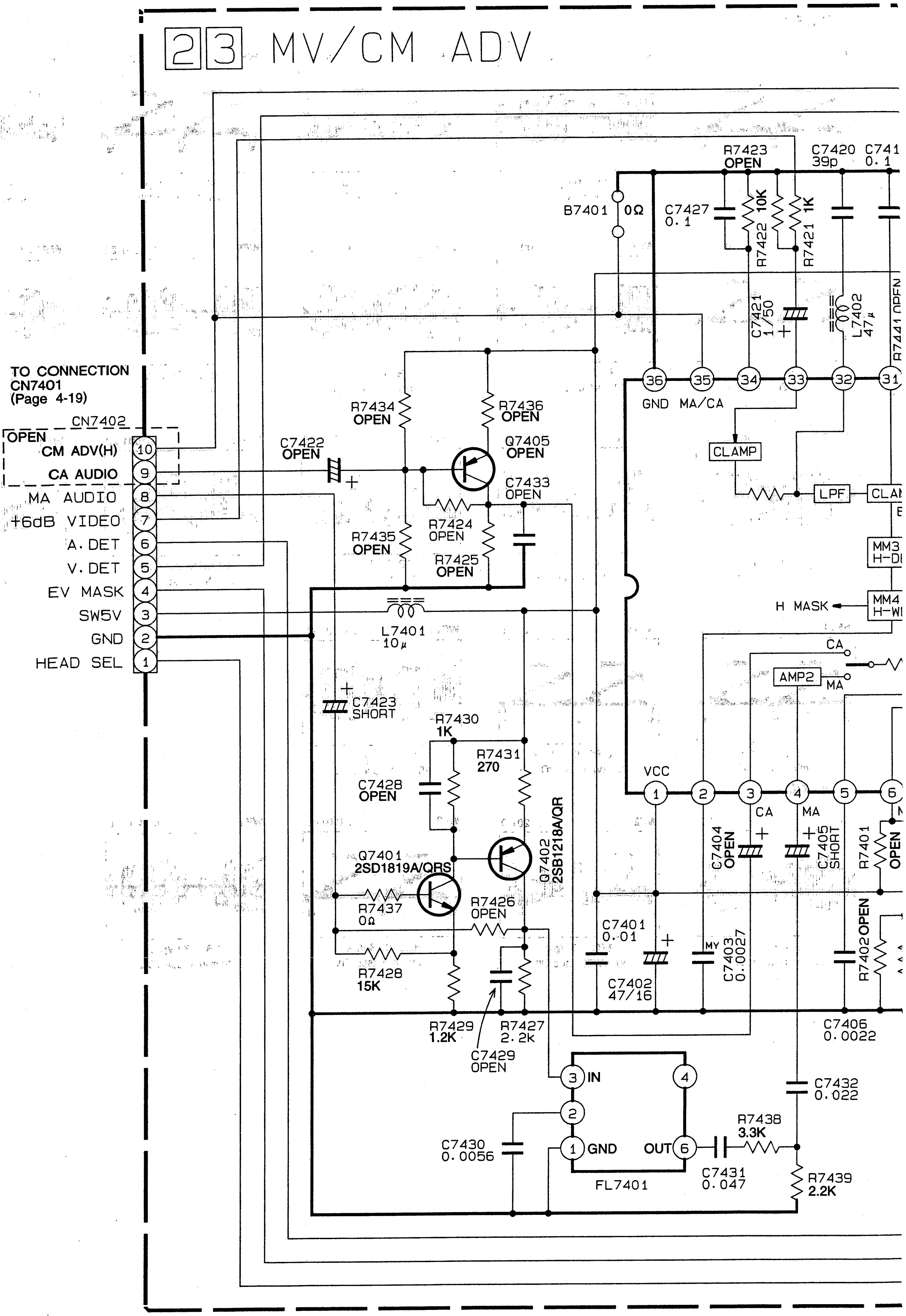
REC 0.78 Vp-p
20 mV/20 μsec/DIV

WF4 IC1201-16

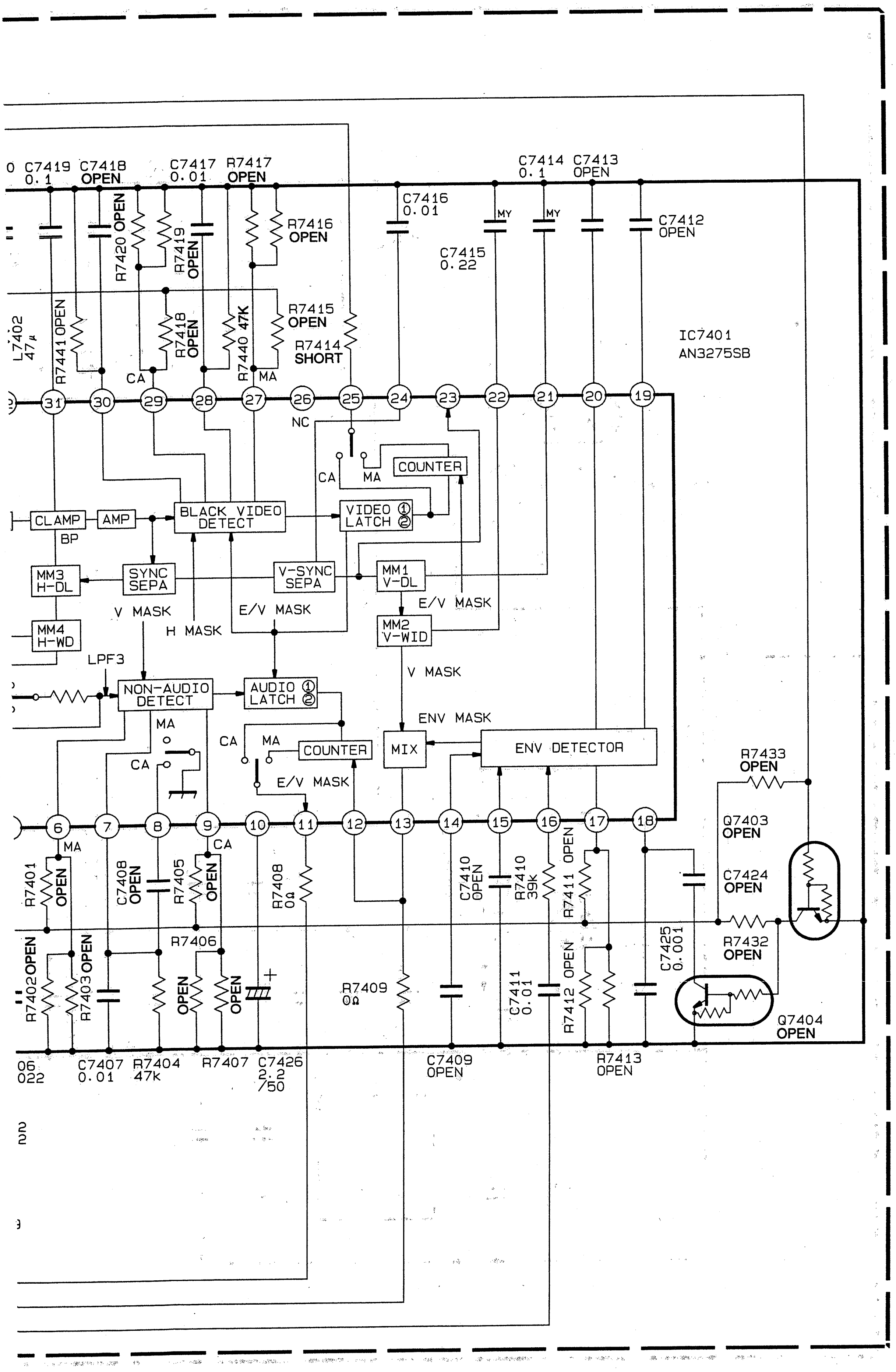


PB 0.72 Vp-p
20 mV/10 μsec/DIV

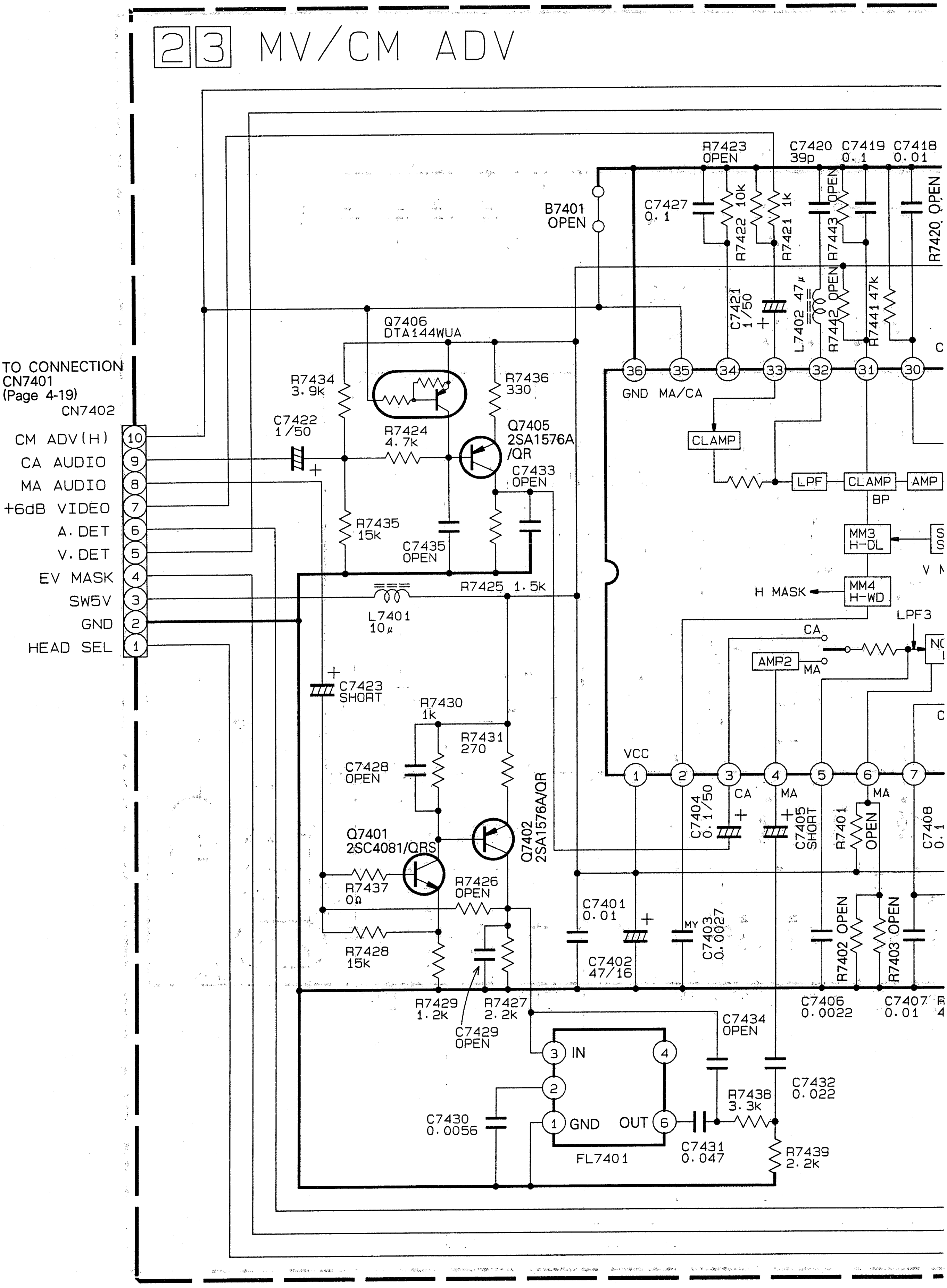
4.16 MOVIE/COMMERCIAL ADVANCE SCHEMATIC DIAGRAM (HR-S4500U)

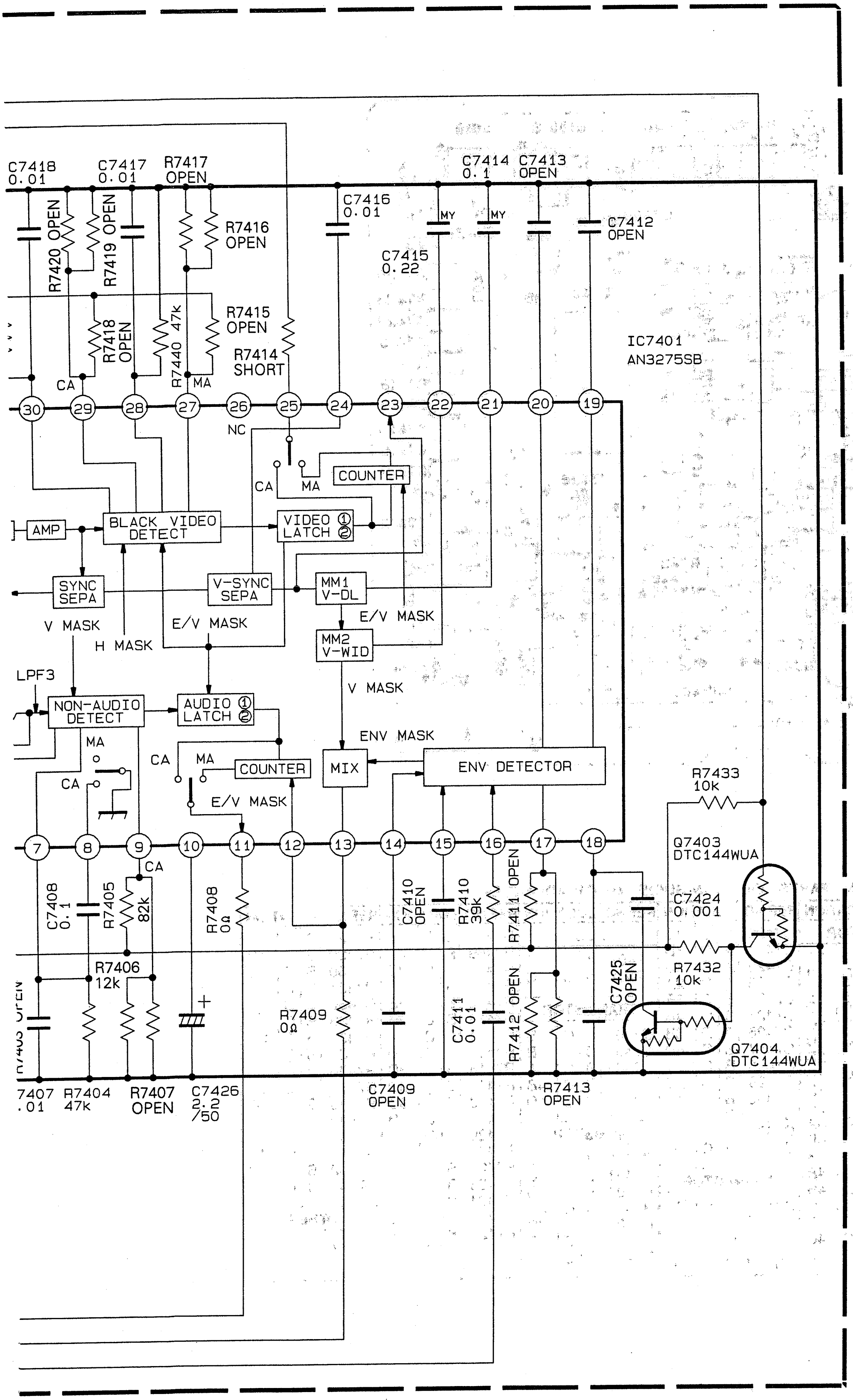


23 MV/CM ADV
TO CONNECTION CN7401 (Page 4-19)
CN7402
OPEN
CM ADV(H) 10
CA AUDIO 9
MA AUDIO 8
+6dB VIDEO 7
A.DET 6
V.DET 5
EV MASK 4
SW5V 3
GND 2
HEAD SEL 1
R7423 OPEN
C7420 39p
C741 0.1
B7401 0Ω
C7427 0.1
R7422 10K
R7421 1K
C7421 1/50
L7402 47μ
R7441 OPEN
36 GND
35 MA/CA
34
33
32
31
R7434 OPEN
R7436 OPEN
C7422 OPEN
Q7405 OPEN
C7433 OPEN
R7424 OPEN
R7435 OPEN
R7425 OPEN
CLAMP
LPF
CLA
MM3 H-D
MM4 H-W
H MASK
L7401 10μ
CA
AMP2
MA
C7423 SHORT
R7430 1K
R7431 270
C7428 OPEN
VCC
1
2
3 CA
4 MA
5
6
C7404 OPEN
C7405 SHORT
R7401 OPEN
Q7401 2SD1819A/QRS
Q7402 2SB1218A/QR
R7437 0Ω
R7426 OPEN
R7428 15K
C7401 0.01
C7402 47/16
MY
C7403 0.0027
R7402 OPEN
C7406 0.0022
R7429 1.2K
R7427 2.2K
C7429 OPEN
3 IN
4
2
1 GND
OUT 6
C7430 0.0056
C7432 0.022
R7438 3.3K
C7431 0.047
R7439 2.2K
FL7401
A
B
C
D

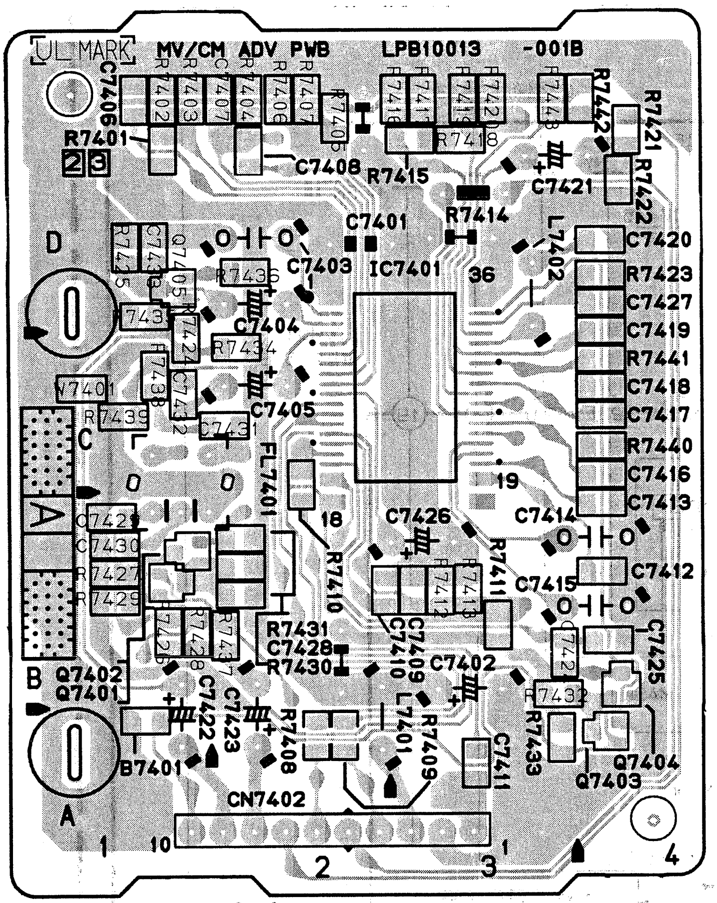

C7419 0.1
C7418 OPEN
C7417 0.01
R7417 OPEN
C7414 0.1
C7413 OPEN
C7416 0.01
C7412 OPEN
C7415 0.22
MY
MY
R7420 OPEN
R7419 OPEN
R7416 OPEN
R7415 OPEN
R7414 SHORT
R7441 OPEN
L7402 47µ
R7418 OPEN
R7440 47K
CA
MA
IC7401
AN3275SB
31
30
29
28
27
26
25
24
23
22
21
20
19
NC
CA
MA
COUNTER
CLAMP
AMP
BP
BLACK VIDEO DETECT
VIDEO ① LATCH ②
MM3 H-DL
SYNC SEPA
V-SYNC SEPA
MM1 V-DL
MM4 H-WD
V MASK
H MASK
E/V MASK
E/V MASK
MM2 V-WID
V MASK
LPF3
NON-AUDIO DETECT
AUDIO ① LATCH ②
ENV MASK
MA
CA
CA
MA
COUNTER
MIX
ENV DETECTOR
E/V MASK
R7433 OPEN
Q7403 OPEN
C7424 OPEN
R7432 OPEN
Q7404 OPEN
6
7
8
9
10
11
12
13
14
15
16
17
18
MA
CA
R7401 OPEN
C7408 OPEN
R7405 OPEN
R7408 0Ω
C7410 OPEN
R7410 39k
R7411 OPEN
R7402 OPEN
R7403 OPEN
R7406
OPEN
OPEN
R7409 0Ω
C7411 0.01
R7412 OPEN
C7425 0.001
06
022
C7407 0.01
R7404 47k
R7407
C7426 2.2 /50
C7409 OPEN
R7413 OPEN
E
F
G

4.16 MOVIE/COMMERCIAL ADVANCE SHEMATIC DIAGRAM (HR-S7500U)


23 MV/CM ADV
TO CONNECTION
CN7401
(Page 4-19)
CN7402
CM ADV(H) 10
CA AUDIO 9
MA AUDIO 8
+6dB VIDEO 7
A. DET 6
V. DET 5
EV MASK 4
SW5V 3
GND 2
HEAD SEL 1
Q7406
DTA144WUA
R7434
3.9k
R7436
330
C7422
1/50
R7424
4.7k
Q7405
2SA1576A
/QR
C7433
OPEN
R7435
15k
C7435
OPEN
L7401
10µ
R7425 1.5k
C7423
SHORT
R7430
1k
R7431
270
C7428
OPEN
Q7401
2SC4081/QRS
Q7402
2SA1576A/QR
R7437
0Ω
R7426
OPEN
R7428
15k
R7429
1.2k
R7427
2.2k
C7429
OPEN
C7430
0.0056
3 IN
4
2
1 GND
OUT 6
FL7401
C7434
OPEN
C7432
0.022
R7438
3.3k
C7431
0.047
R7439
2.2k
B7401
OPEN
R7423
OPEN
C7420
39p
C7419
0.1
C7418
0.01
C7427
0.1
R7422 10k
R7421 1k
OPEN
R7443
R7420 OPEN
C7421
1/50
L7402 47µ
R7442 OPEN
R7441 47k
36 GND
35 MA/CA
34
33
32
31
30
CLAMP
LPF
CLAMP
AMP
BP
MM3
H-DL
MM4
H-WD
H MASK
LPF3
CA
MA
AMP2
VCC
1
2
3 CA
4 MA
5
6 MA
7
C7404
0.1/50
C7405
SHORT
R7401
OPEN
C7408
0.1
C7401
0.01
C7402
47/16
MY
C7403
0.0027
R7402 OPEN
R7403 OPEN
C7406
0.0022
C7407
0.01
V
S
S
C
NC
R
4


C7418
0.01
C7417
0.01
R7417
OPEN
C7414
0.1
C7413
OPEN
C7416
0.01
MY
MY
C7412
OPEN
R7420 OPEN
R7419 OPEN
R7416
OPEN
C7415
0.22
R7418
OPEN
R7440 47k
R7415
OPEN
R7414
SHORT
IC7401
AN3275SB
CA
MA
30
29
28
27
26
25
24
23
22
21
20
19
NC
CA
MA
COUNTER
AMP
BLACK VIDEO
DETECT
VIDEO ①
LATCH ②
SYNC
SEPA
V-SYNC
SEPA
MM1
V-DL
E/V MASK
V MASK
H MASK
E/V MASK
MM2
V-WID
V MASK
LPF3
NON-AUDIO
DETECT
AUDIO ①
LATCH ②
ENV MASK
MA
CA
CA
MA
COUNTER
MIX
ENV DETECTOR
E/V MASK
R7433
10k
Q7403
DTC144WUA
7
8
9
10
11
12
13
14
15
16
17
18
CA
C7408
0.1
R7405
82k
R7408
0Ω
C7410
OPEN
R7410
39k
R7411 OPEN
C7424
0.001
R7432
10k
R7406
12k
R7403 OPEN
R7409
0Ω
C7411
0.01
R7412 OPEN
C7425
OPEN
Q7404
DTC144WUA
7407
.01
R7404
47k
R7407
OPEN
C7426
2.2
/50
C7409
OPEN
R7413
OPEN
E
F
G

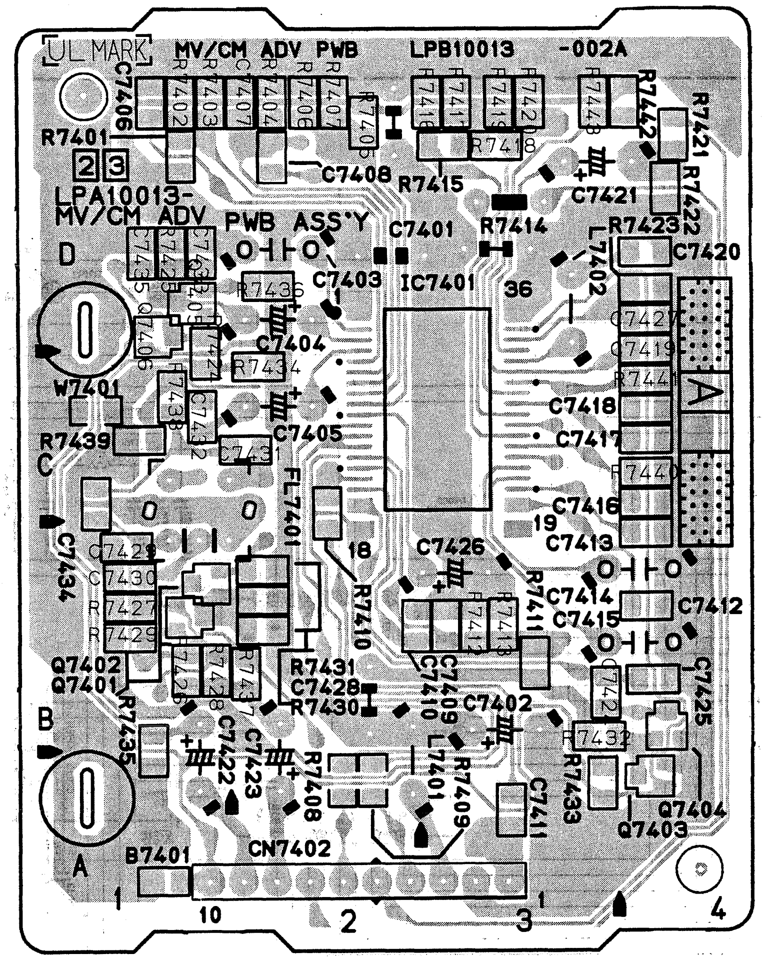
4.17 MOVIE/COMMERCIAL ADVANCE CIRCUIT BOARD (HR-S4500U)


UL MARK
MV/CM ADV PWB
LPB10013
-001B
C7406
R7402
R7403
C7407
R7404
R7406
R7407
R7405
R7416
R7417
R7419
R7420
R7418
R7443
R7442
R7421
R7422
R7401
C7408
R7415
C7421
R7414
L7402
C7401
C7403
IC7401
36
C7420
R7423
C7427
C7419
R7441
C7418
C7417
R7440
C7416
C7413
D
R7435
C7433
Q7405
R7436
R7437
R7424
R7434
C7404
V7401
R7438
C7432
R7439
C7431
C7405
FL7401
19
18
C
C7426
R7411
C7414
A
C7429
C7430
R7427
R7429
R7410
R7412
R7413
C7415
C7412
C7409
C7410
R7426
R7428
R7437
R7431
C7428
R7430
C7402
C7425
C7424
R7432
B
Q7402
Q7401
C7422
C7423
R7408
L7401
R7409
C7411
R7433
Q7404
Q7403
B7401
CN7402
A
1
10
2
3
1
4

COMPONENT PARTS LOCATION GUIDE <MV/CM ADVANCE>

REF.NO.	LOCATION		
CAPACITOR			
C7401	A	D	2D
C7402	A	D	3B
C7403	A	D	2D
C7404	A	D	2D
C7405	A	D	2C
C7406	B	C	1D
C7407	B	C	2D
C7408	B	C	2D
C7409	B	C	3B
C7410	B	C	2B
C7411	B	C	3A
C7412	B	C	4B
C7413	B	C	4B
C7414	A	D	4B
C7415	A	D	4B
C7416	B	C	4C
C7417	B	C	4C
C7418	B	C	4C
C7419	B	C	4C
C7420	B	C	4D
C7421	A	D	3D
C7422	A	D	1B
C7423	A	D	2A
C7424	B	C	3B
C7425	B	C	4B
C7426	A	D	3B
C7427	B	C	4D
C7428	B	C	2B
C7429	B	C	1B
C7430	B	C	1B
C7431	B	C	2C
C7432	B	C	1C
C7433	B	C	1D
CONNECTOR			
CN7402	A	D	3A
IC			
IC7401	B	C	3C
COIL			
L7401	A	D	2B
L7402	A	D	3C
TRANSISTOR			
Q7401	B	C	1B
Q7402	B	C	1B
Q7403	B	C	4A
Q7404	B	C	4B
Q7405	B	C	1D
RESISTOR			
R7401	B	C	1D
R7402	B	C	1D
R7403	B	C	1D
R7404	B	C	2D
R7405	B	C	2D
R7406	B	C	2D
R7407	B	C	2D
R7408	B	C	2A
R7409	B	C	2A
R7410	B	C	2C
R7411	B	C	3B
R7412	B	C	3B
R7413	B	C	3B
R7414	A	D	3D
R7415	B	C	3D
R7416	B	C	3D
R7417	B	C	3D
R7418	B	C	3D
R7419	B	C	3D
R7420	B	C	3D
R7421	B	C	4D
R7422	B	C	4D
R7423	B	C	4D
R7424	B	C	1C
R7425	B	C	1D
R7426	B	C	1B
R7427	B	C	1B
R7428	B	C	1B
R7429	B	C	1B
R7430	B	C	2B
R7431	B	C	2B
R7432	B	C	3A
R7433	B	C	3A
R7434	B	C	2C
R7435	B	C	1C
R7436	B	C	2D
R7437	B	C	2B
R7438	B	C	1C
R7439	B	C	1C
R7440	B	C	4C
R7441	B	C	4C
R7442	B	C	4D
R7443	B	C	3D
OTHER			
FL7401	A	D	2B

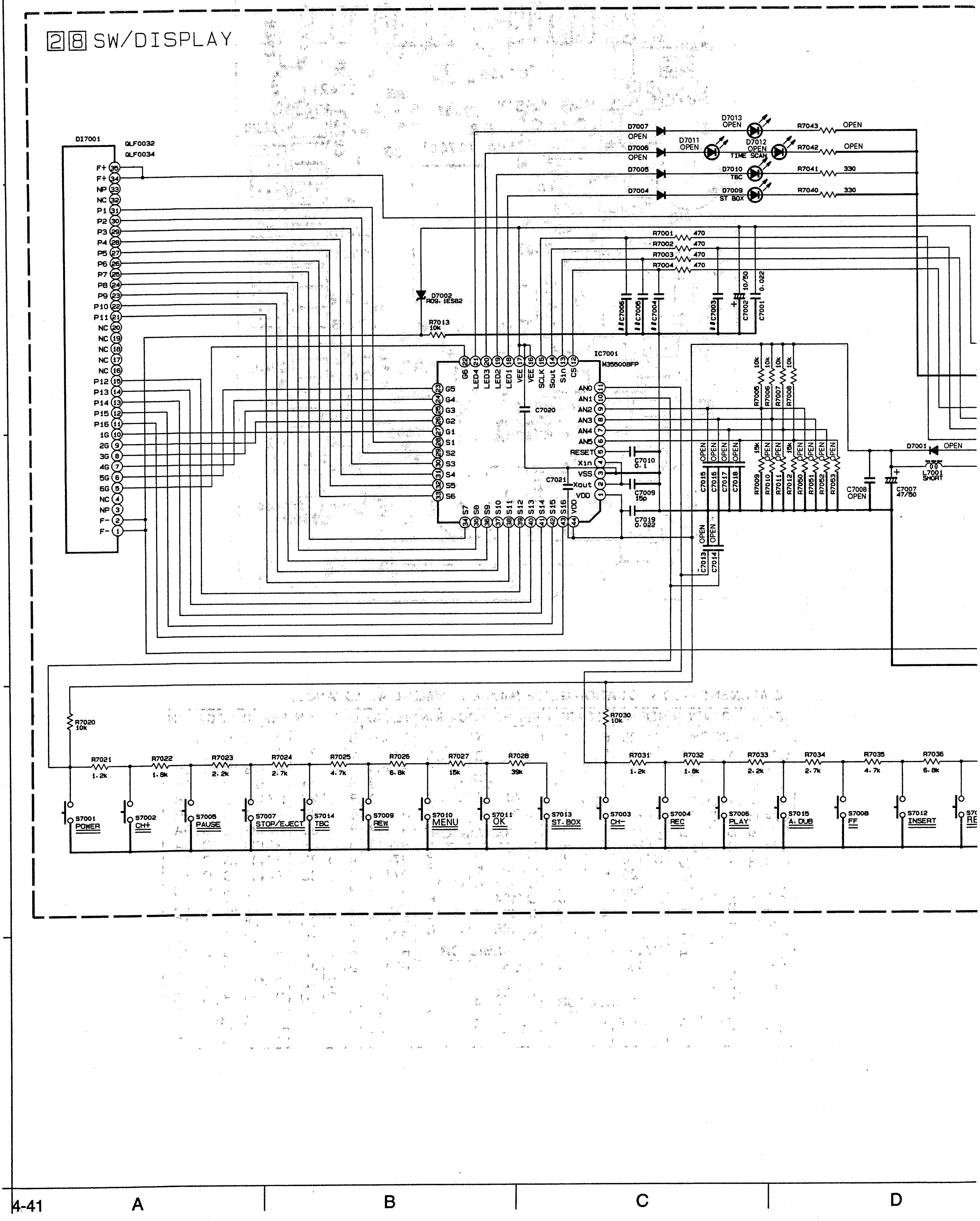
4.17 MOVIE/COMMERCIAL ADVANCE CIRCUIT BOARD (HR-S7500U)

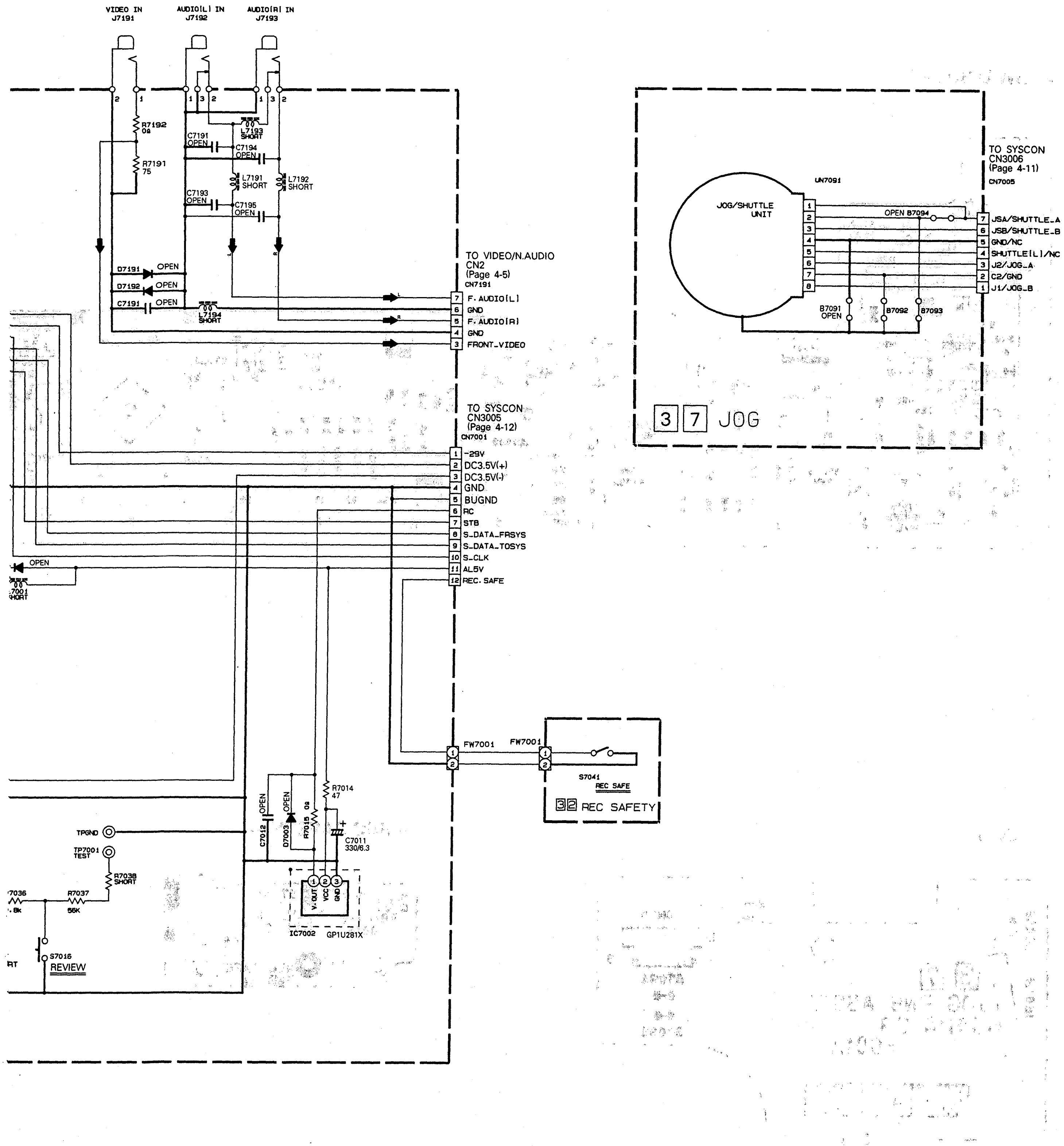

UL MARK
MV/CM ADV PWB
LPB10013 -002A
LPA10013-
MV/CM ADV PWB ASS'Y
IC7401
CN7402
B7401
W7401
FL7401
L7401
L7402
Q7401
Q7402
Q7403
Q7404
C7401
C7402
C7403
C7404
C7405
C7406
C7408
C7409
C7410
C7411
C7412
C7413
C7414
C7415
C7416
C7417
C7418
C7420
C7421
C7422
C7423
C7425
C7426
C7428
C7434
R7401
R7408
R7409
R7410
R7411
R7414
R7415
R7421
R7422
R7423
R7430
R7431
R7433
R7435
R7439
R7442
1
10
18
19
36
A
B
C
D
1
2
3
4

COMPONENT PARTS LOCATION GUIDE (MOVIE/COMMERCIAL ADVANCE)

REF.NO.	LOCATION		
CAPACITOR			
C7401	A	D	2D
C7402	A	D	3B
C7403	A	D	2D
C7404	A	D	2D
C7405	A	D	2C
C7406	B	C	1D
C7407	B	C	2D
C7408	B	C	2D
C7409	B	C	3B
C7410	B	C	2B
C7411	B	C	3A
C7412	B	C	4B
C7413	B	C	4B
C7414	A	D	4B
C7415	A	D	4B
C7416	B	C	4C
C7417	B	C	4C
C7418	B	C	4C
C7419	B	C	4C
C7420	B	C	4D
C7421	A	D	3D
C7422	A	D	1B
C7423	A	D	2A
C7424	B	C	3B
C7425	B	C	4B
C7426	A	D	3B
C7427	B	C	4D
C7428	B	C	2B
C7429	B	C	1B
C7430	B	C	1B
C7431	B	C	2C
C7432	B	C	1C
C7433	B	C	1D
C7434	B	C	1C
C7435	B	C	1D
CONNECTOR			
CN7402	A	D	3A
IC			
IC7401	B	C	3C
COIL			
L7401	A	D	2B
L7402	A	D	3C
TRANSISTOR			
Q7401	B	C	1B
Q7402	B	C	1B
Q7403	B	C	4A
Q7404	B	C	4B
Q7405	B	C	1D
Q7406	B	C	1C
RESISTOR			
R7401	B	C	1D
R7402	B	C	1D
R7403	B	C	1D
R7404	B	C	2D
R7405	B	C	2D
R7406	B	C	2D
R7407	B	C	2D
R7408	B	C	2A
R7409	B	C	2A
R7410	B	C	2C
R7411	B	C	3B
R7412	B	C	3B
R7413	B	C	3B
R7414	A	D	3D
R7415	B	C	3D
R7416	B	C	3D
R7417	B	C	3D
R7418	B	C	3D
R7419	B	C	3D
R7420	B	C	3D
R7421	B	C	4D
R7422	B	C	4D
R7423	B	C	4D
R7424	B	C	1C
R7425	B	C	1D
R7426	B	C	1B
R7427	B	C	1B
R7428	B	C	1B
R7429	B	C	1B
R7430	B	C	2B
R7431	B	C	2B
R7432	B	C	3A
R7433	B	C	3A
R7434	B	C	2C
R7435	B	C	1A
R7436	B	C	2D
R7437	B	C	2B
R7438	B	C	1C
R7439	B	C	1C
R7440	B	C	4C
R7441	B	C	4C
R7442	B	C	4D
R7443	B	C	3D
OTHER			
FL7401	A	D	2B

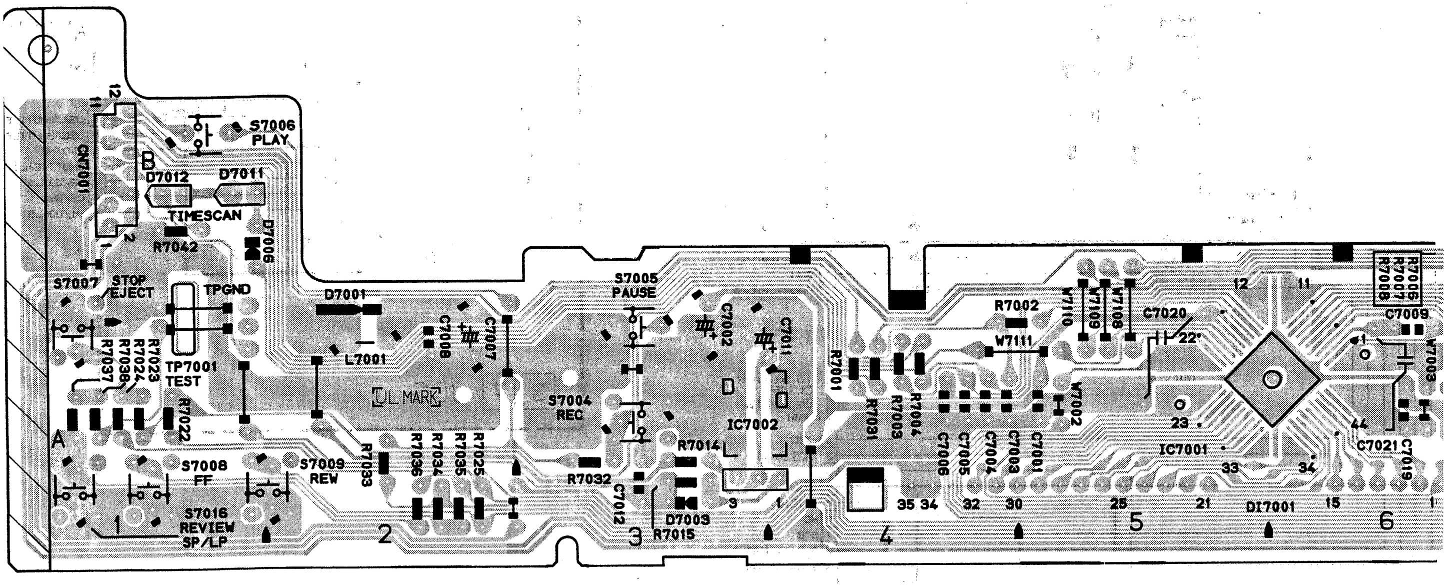
4.20 SW/DISP,REC SAFETY & JOG SCHEMATIC DIAGRAM (HR-S7500U)


28 SW/DISPLAY
DI7001
QLF0032
QLF0034
F+ 35
F+ 34
NP 33
NC 32
P1 31
P2 30
P3 29
P4 28
P5 27
P6 26
P7 25
P8 24
P9 23
P10 22
P11 21
NC 20
NC 19
NC 18
NC 17
NC 16
P12 15
P13 14
P14 13
P15 12
P16 11
1G 10
2G 9
3G 8
4G 7
5G 6
6G 5
NC 4
NP 3
F- 2
F- 1
D7007 OPEN
D7006 OPEN
D7005
D7004
D7013 OPEN
D7011 OPEN
D7012 OPEN TIME SCAN
D7010 TBC
D7009 ST BOX
R7043 OPEN
R7042 OPEN
R7041 330
R7040 330
R7001 470
R7002 470
R7003 470
R7004 470
C7006
C7005
C7004
C7003
C7002 10/50
C7001 0.022
D7002 RD9.1ESB2
R7013 10k
IC7001 M35500BFP
G6 22
LED4 21
LED3 20
LED2 19
LED1 18
VEE 17
VEE 16
SCLK 15
Sout 14
Sin 13
CS 12
G5 23
G4 24
G3 25
G2 26
G1 27
S1 28
S2 29
S3 30
S4 31
S5 32
S6 33
S7 34
S8 35
S9 36
S10 37
S11 38
S12 39
S13 40
S14 41
S15 42
S16 43
VDD 44
AN0 11
AN1 10
AN2 9
AN3 8
AN4 7
AN5 6
RESET 5
Xin 4
VSS 3
Xout 2
VDD 1
C7020
C7021
C7010 0.1
C7009 15p
C7019 0.022
C7013 OPEN
C7014 OPEN
C7015 OPEN
C7016 OPEN
C7017 OPEN
C7018 OPEN
R7005 10k
R7006 10k
R7007 10k
R7008 10k
R7009 15k
R7010 OPEN
R7011 OPEN
R7012 15k
R7050 OPEN
R7051 OPEN
R7052 OPEN
R7053 OPEN
C7008 OPEN
C7007 47/50
D7001 OPEN
L7001 SHORT
R7020 10k
R7021 1.2k
R7022 1.8k
R7023 2.2k
R7024 2.7k
R7025 4.7k
R7026 6.8k
R7027 15k
R7028 39k
R7030 10k
R7031 1.2k
R7032 1.8k
R7033 2.2k
R7034 2.7k
R7035 4.7k
R7036 6.8k
S7001 POWER
S7002 CH+
S7005 PAUSE
S7007 STOP/EJECT
S7014 TBC
S7009 REW
S7010 MENU
S7011 OK
S7013 ST.BOX
S7003 CH-
S7004 REC
S7006 PLAY
S7015 A.DUB
S7008 FF
S7012 INSERT
A
B
C
D

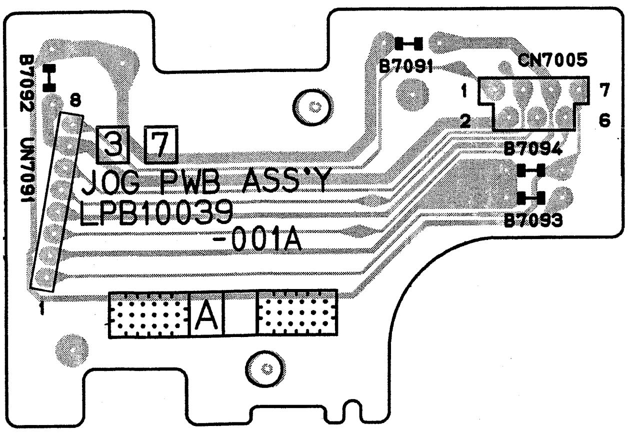

VIDEO IN
J7191
AUDIO(L) IN
J7192
AUDIO(R) IN
J7193
R7192
0Ω
R7191
75
L7193
SHORT
C7191
OPEN
C7194
OPEN
L7191
SHORT
L7192
SHORT
C7193
OPEN
C7195
OPEN
D7191
OPEN
D7192
OPEN
C7191
OPEN
L7194
SHORT
TO VIDEO/N.AUDIO
CN2
(Page 4-5)
CN7191
F. AUDIO(L)
GND
F. AUDIO(R)
GND
FRONT_VIDEO
TO SYSCON
CN3005
(Page 4-12)
CN7001
-29V
DC3.5V(+)
DC3.5V(-)
GND
BUGND
RC
STB
S_DATA_FRSYS
S_DATA_TOSYS
S_CLK
AL5V
REC. SAFE
OPEN
L7001
SHORT
TPGND
TP7001
TEST
R7038
SHORT
R7036
R7037
56K
S7016
REVIEW
C7012
OPEN
D7003
OPEN
R7015 0Ω
R7014
47
C7011
330/6.3
V. OUT
VCC
GND
IC7002
GP1U281X
FW7001
FW7001
S7041
REC SAFE
32 REC SAFETY
UN7091
JOG/SHUTTLE
UNIT
OPEN B7094
B7091
OPEN
B7092
B7093
TO SYSCON
CN3006
(Page 4-11)
CN7005
JSA/SHUTTLE_A
JSB/SHUTTLE_B
GND/NC
SHUTTLE(L)/NC
J2/JOG_A
C2/GND
J1/JOG_B
37 JOG

4.21 SW/DISPLAY, REC SAFETY & JOG CIRCUIT BOARDS (HR-S7500U)

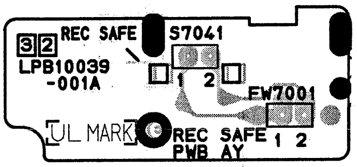
– SW/DISPLAY –

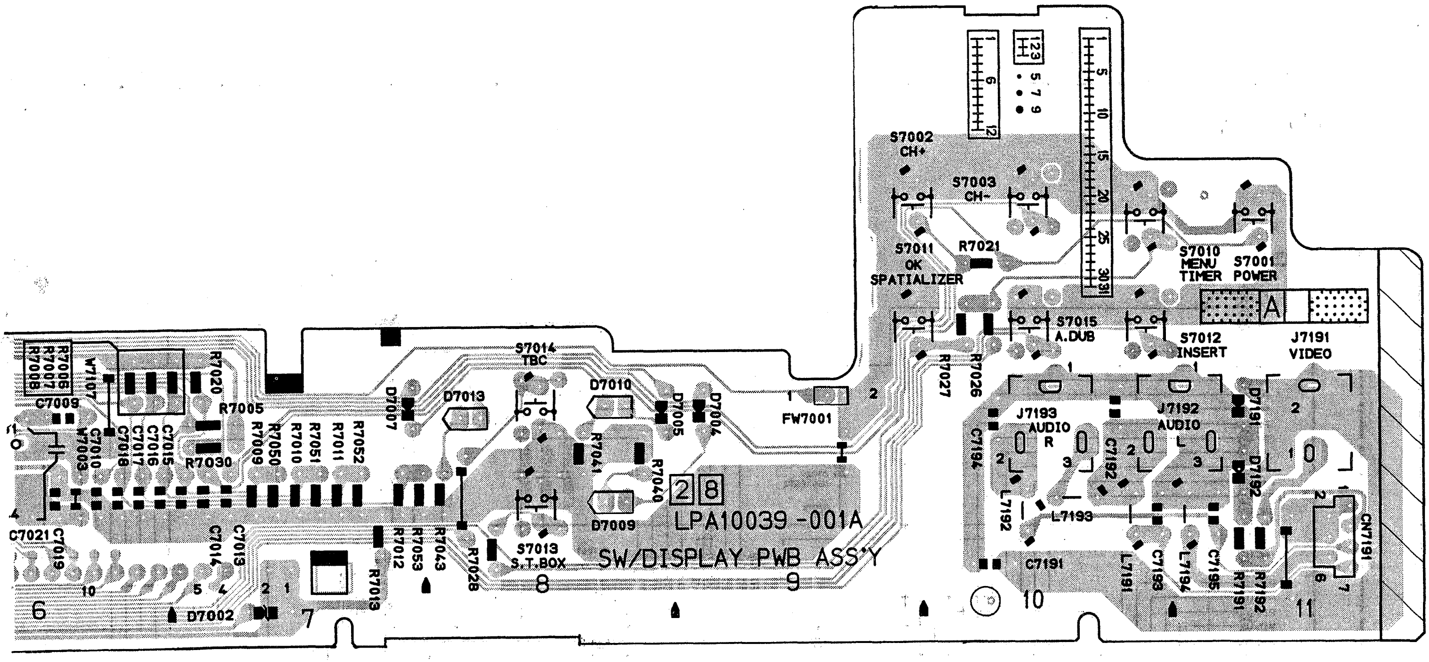

CN7001
S7006 PLAY
D7012
D7011
TIMESCAN
D7006
R7042
S7007 STOP /EJECT
TPGND
TP7001 TEST
R7037
R7038
R7024
R7023
R7022
D7001
L7001
C7008
C7007
UL MARK
S7005 PAUSE
C7002
C7011
S7004 REC
IC7002
R7014
R7032
C7012
D7003
R7015
R7033
R7036
R7034
R7035
R7025
S7008 FF
S7009 REW
S7016 REVIEW SP/LP
R7001
R7031
R7003
R7004
R7002
W7111
W7110
W7109
W7108
C7020
22°
C7005
C7006
C7004
C7003
C7001
W7002
IC7001
DI7001
R7006
R7007
R7008
C7009
W7003
C7021
C7019
A
B
1
2
3
4
5
6
11
12
23
33
34
35 34
32
30
25
21
15
44

— JOG —


B7092
UN7091
8
1
3
7
JOG PWB ASS'Y
LPB10039
-001A
B7091
CN7005
1
2
7
6
B7094
B7093
A

— REC SAFETY —

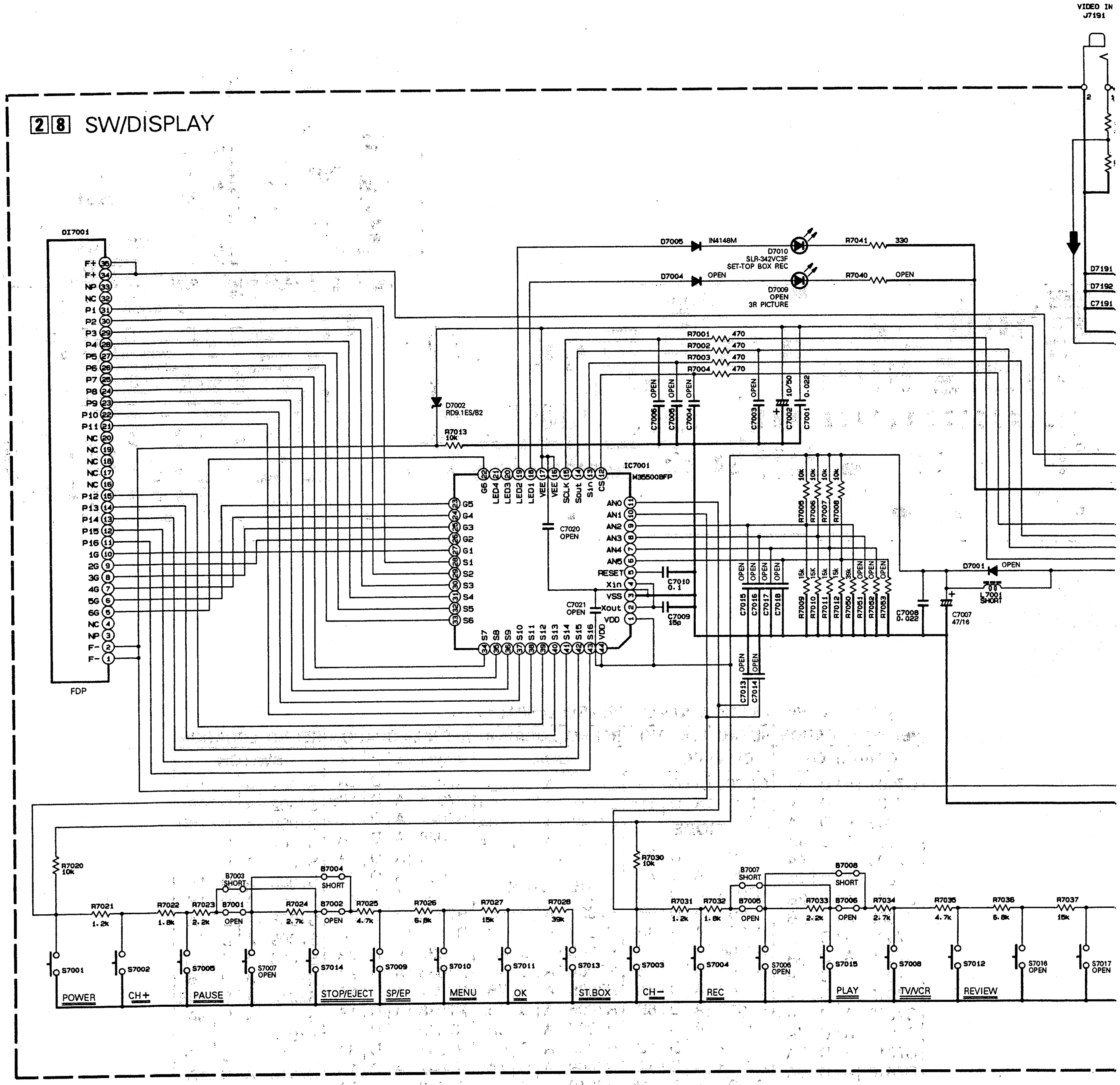

3 2
REC SAFE
S7041
LPB10039
-001A
1
2
FW7001
UL MARK
REC SAFE PWB AY
1 2

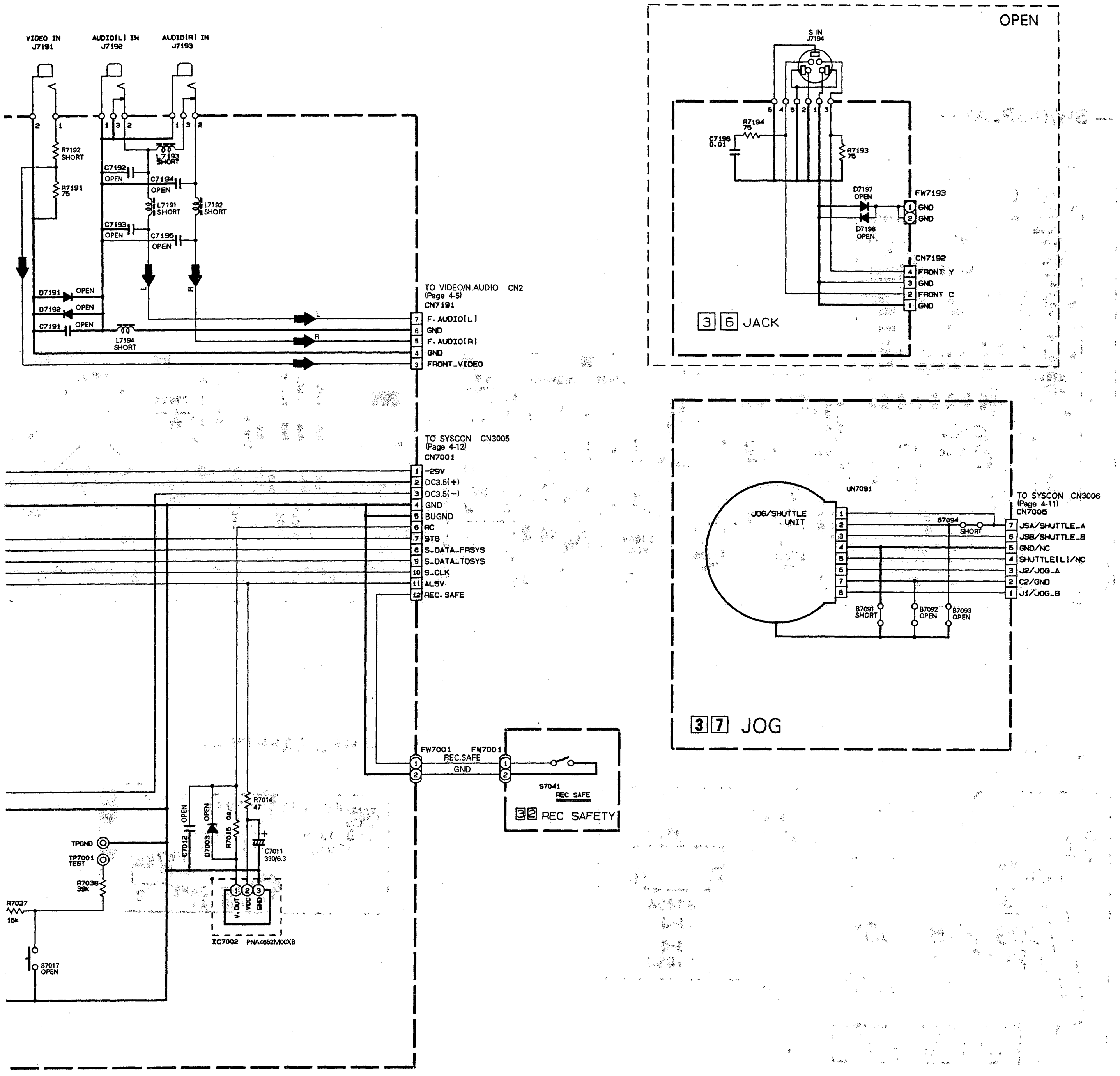

S7002
CH+
S7003
CH-
S7011
OK
SPATIALIZER
R7021
S7010
MENU
TIMER
S7001
POWER
S7015
A.DUB
S7012
INSERT
J7191
VIDEO
A
S7014
TBC
D7013
D7010
D7005
D7006
D7007
FW7001
R7026
R7027
J7193
AUDIO
R
J7192
AUDIO
L
D7191
D7192
C7194
C7192
L7192
L7193
C7191
L7191
C7193
L7194
C7195
R7191
R7192
CN7191
R7008
R7007
R7006
W7107
R7020
C7009
R7005
C7010
W7003
C7018
C7017
C7016
C7015
R7030
R7009
R7050
R7010
R7011
R7051
R7052
R7041
R7040
D7009
2
8
LPA10039 -001A
SW/DISPLAY PWB ASS'Y
S7013
S.T.BOX
C7021
C7019
C7014
C7013
R7012
R7053
R7043
R7028
R7013
D7002
6
7
8
9
10
11

COMPONENT PARTS LOCATION GUIDE <SW/DISPALY>

REF.NO.	LOCATION		
CAPACITOR			
C7001	A	D	5A
C7002	A	D	3A
C7003	A	D	4A
C7004	A	D	4A
C7005	A	D	4A
C7006	A	D	4A
C7007	A	D	2B
C7008	A	D	2B
C7009	A	D	6B
C7010	A	D	6A
C7011	A	D	3A
C7012	A	D	3A
C7013	A	D	7A
C7014	A	D	7A
C7015	A	D	7A
C7016	A	D	6A
C7017	A	D	6A
C7018	A	D	6A
C7019	A	D	6A
C7020	A	D	5B
C7021	A	D	6B
C7191	A	D	10A
C7192	A	D	10B
C7193	A	D	10A
C7194	A	D	10B
C7195	A	D	11A
CONNECTOR			
CN7001	A	D	1B
CN7191	A	D	11A
DIODE			
D7001	A	D	2B
D7002	A	D	7A
D7003	A	D	3A
D7004	A	D	9B
D7005	A	D	8B
D7006	A	D	1B
D7007	A	D	7B
D7009	A	D	8A
D7010	A	D	8B
D7011	A	D	1B
D7012	A	D	1B
D7013	A	D	8B
D7191	A	D	11B
D7192	A	D	11A
IC			
IC7001	B	C	6A
IC7002	A	D	3A
JACK			
J7191	A	D	11A
J7192	A	D	11A
J7193	A	D	10A
COIL			
L7001	A	D	2B
L7191	A	D	10A
L7192	A	D	10A
L7193	A	D	10A
L7194	A	D	11A
RESISTOR			
R7001	A	D	4A
R7002	A	D	5B
R7003	A	D	4A
R7004	A	D	4A
R7005	A	D	7B
R7006	A	D	7B
R7007	A	D	6B
R7008	A	D	6B
R7009	A	D	7A
R7010	A	D	7A
R7011	A	D	7A
R7012	A	D	7A
R7013	A	D	7A
R7014	A	D	3A
R7015	A	D	3A
R7020	A	D	7B
R7021	A	D	10B
R7022	A	D	1A
R7023	A	D	1A
R7024	A	D	1A
R7025	A	D	2A
R7026	A	D	10B
R7027	A	D	10B
R7028	A	D	8A
R7030	A	D	7A
R7031	A	D	4A
R7032	A	D	3A
R7033	A	D	2A
R7034	A	D	2A
R7035	A	D	2A
R7036	A	D	2A
R7037	A	D	1A
R7038	A	D	1A
R7040	A	D	8A
R7041	A	D	8A
R7042	A	D	1B
R7043	A	D	8A
R7050	A	D	7A
R7051	A	D	7A
R7052	A	D	7A
R7053	A	D	7A
R7191	A	D	11A
R7192	A	D	11A
SWITCH			
S7001	A	D	11B
S7002	A	D	9B
S7003	A	D	10B
S7004	A	D	3A
S7005	A	D	3B
S7006	A	D	1B
S7007	A	D	1B
S7008	A	D	1A
S7009	A	D	2A
S7010	A	D	10B
S7011	A	D	9B
S7012	A	D	10B
S7013	A	D	8A
S7014	A	D	8B
S7015	A	D	10B
S7016	A	D	1A
OTHER			
DI7001	A	D	6A
FW7001	A	D	9B
TP7001	A	D	1B
TPGND	A	D	1B

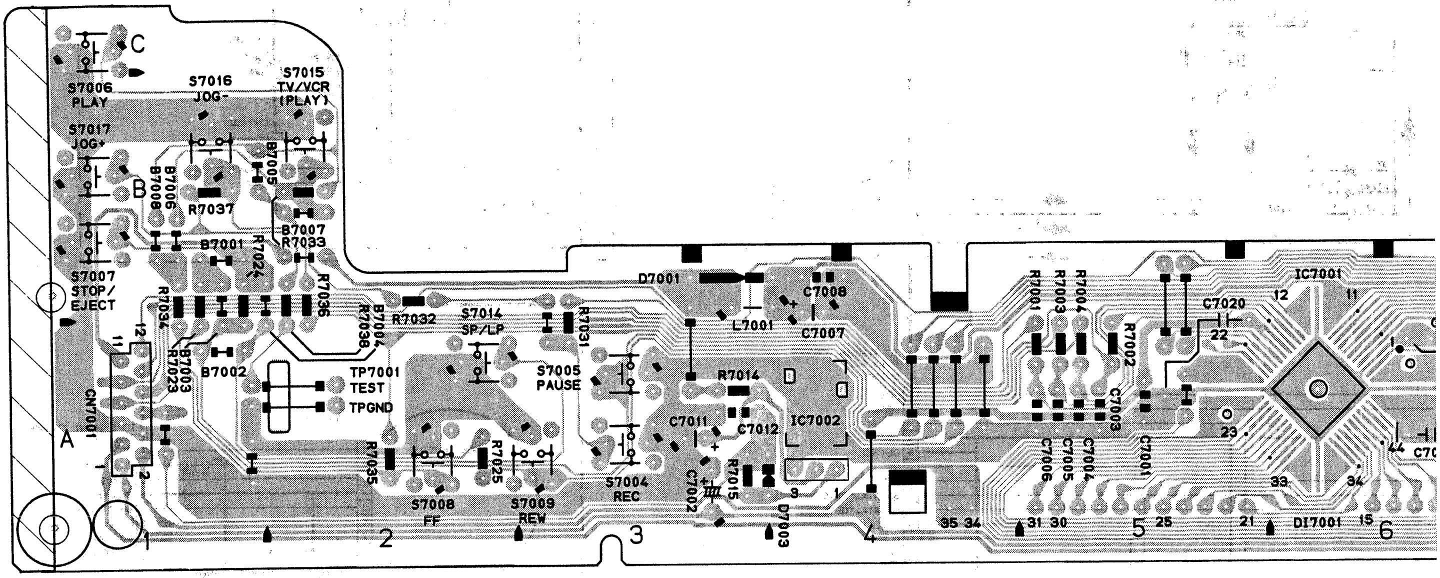
4.20 SW/DISPLAY, REC SAFETY AND JOG SCHEMATIC DIAGRAMS (HR-S4500U)


VIDEO IN
J7191
28 SW/DISPLAY
DI7001
FDP
F+ 36
F+ 34
NP 33
NC 32
P1 31
P2 30
P3 29
P4 28
P5 27
P6 26
P7 25
P8 24
P9 23
P10 22
P11 21
NC 20
NC 19
NC 18
NC 17
NC 16
P12 15
P13 14
P14 13
P15 12
P16 11
1G 10
2G 9
3G 8
4G 7
5G 6
6G 5
NC 4
NP 3
F- 2
F- 1
D7005 IN4148M
D7010 SLR-342VC3F SET-TOP BOX REC
D7004 OPEN
D7009 OPEN 3R PICTURE
R7041 330
R7040 OPEN
D7191
D7192
C7191
R7001 470
R7002 470
R7003 470
R7004 470
D7002 RD9.1ES/B2
R7013 10k
C7006 OPEN
C7005 OPEN
C7004 OPEN
C7003 OPEN
C7002 10/50
C7001 0.022
IC7001
M35500BFP
G6 LED4 LED3 LED2 LED1 VEE VEE SCLK Sout Sin CS
G5 G4 G3 G2 G1 S1 S2 S3 S4 S5 S6
S7 S8 S9 S10 S11 S12 S13 S14 S15 S16 VDD
AN0 AN1 AN2 AN3 AN4 AN5 RESET Xin VSS Xout VDD
C7020 OPEN
C7021 OPEN
C7010 0.1
C7009 15p
R7005 10k
R7006 10k
R7007 10k
R7008 10k
C7015 OPEN
C7016 OPEN
C7017 OPEN
C7018 OPEN
R7009 15k
R7010 15k
R7011 15k
R7012 15k
R7050 15k
R7051 OPEN
R7052 OPEN
R7053 OPEN
C7008 0.022
D7001 OPEN
L7001 SHORT
C7007 47/16
C7013 OPEN
C7014 OPEN
R7020 10k
R7030 10k
B7003 SHORT
B7004 SHORT
B7007 SHORT
B7008 SHORT
R7021 1.2k
R7022 1.8k
R7023 2.2k
B7001 OPEN
R7024 2.7k
B7002 OPEN
R7025 4.7k
R7026 6.8k
R7027 15k
R7028 39k
R7031 1.2k
R7032 1.8k
B7005 OPEN
R7033 2.2k
B7006 OPEN
R7034 2.7k
R7035 4.7k
R7036 6.8k
R7037 15k
S7001 POWER
S7002 CH+
S7005 PAUSE
S7007 OPEN
S7014 STOP/EJECT
S7009 SP/EP
S7010 MENU
S7011 OK
S7013 ST.BOX
S7003 CH−
S7004 REC
S7006 OPEN
S7015 PLAY
S7008 TV/VCR
S7012 REVIEW
S7016 OPEN
S7017 OPEN

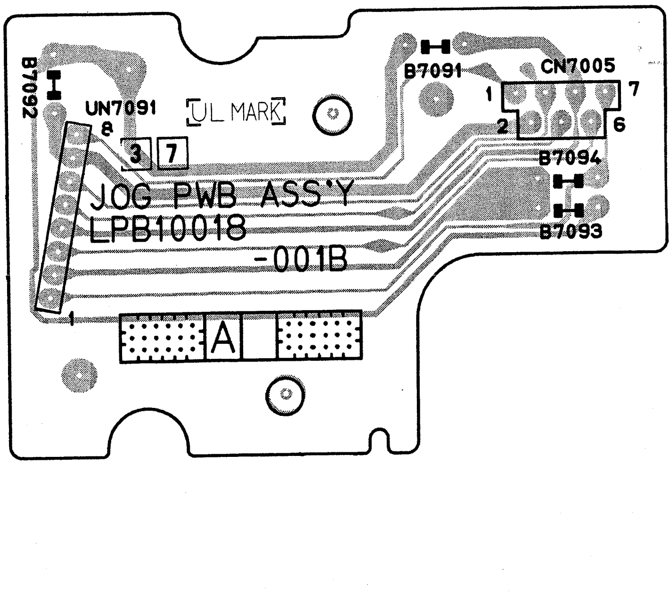

VIDEO IN J7191
AUDIO[L] IN J7192
AUDIO[R] IN J7193
R7192 SHORT
R7191 75
C7192 OPEN
C7194 OPEN
L7193 SHORT
L7191 SHORT
L7192 SHORT
C7193 OPEN
C7195 OPEN
D7191 OPEN
D7192 OPEN
C7191 OPEN
L7194 SHORT
TO VIDEO/N.AUDIO CN2 (Page 4-5)
CN7191
7 F. AUDIO[L]
6 GND
5 F. AUDIO[R]
4 GND
3 FRONT_VIDEO
TO SYSCON CN3005 (Page 4-12)
CN7001
1 -29V
2 DC3.5(+)
3 DC3.5(−)
4 GND
5 BUGND
6 RC
7 STB
8 S_DATA_FRSYS
9 S_DATA_TOSYS
10 S_CLK
11 AL5V
12 REC. SAFE
FW7001
FW7001
REC.SAFE
GND
S7041
REC SAFE
3 2 REC SAFETY
R7014 47
C7012 OPEN
D7003 OPEN
R7015 0Ω
C7011 330/6.3
TPGND
TP7001 TEST
R7038 39k
R7037 15k
S7017 OPEN
V.OUT
VCC
GND
IC7002 PNA4652M00XB
OPEN
S IN J7194
R7194 75
C7196 0.01
R7193 75
D7197 OPEN
D7198 OPEN
FW7193
1 GND
2 GND
CN7192
4 FRONT Y
3 GND
2 FRONT C
1 GND
3 6 JACK
UN7091
JOG/SHUTTLE UNIT
B7094 SHORT
B7091 SHORT
B7092 OPEN
B7093 OPEN
TO SYSCON CN3006 (Page 4-11)
CN7005
7 JSA/SHUTTLE_A
6 JSB/SHUTTLE_B
5 GND/NC
4 SHUTTLE[L]/NC
3 J2/JOG_A
2 C2/GND
1 J1/JOG_B
3 7 JOG

4.21 SW/DISPLAY, REC SAFETY & JOG CIRCUIT BOARD (HR-S4500U)

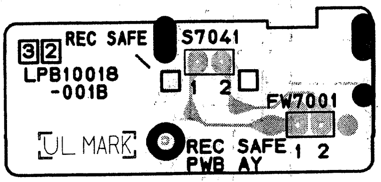
— SW/DISPLAY —

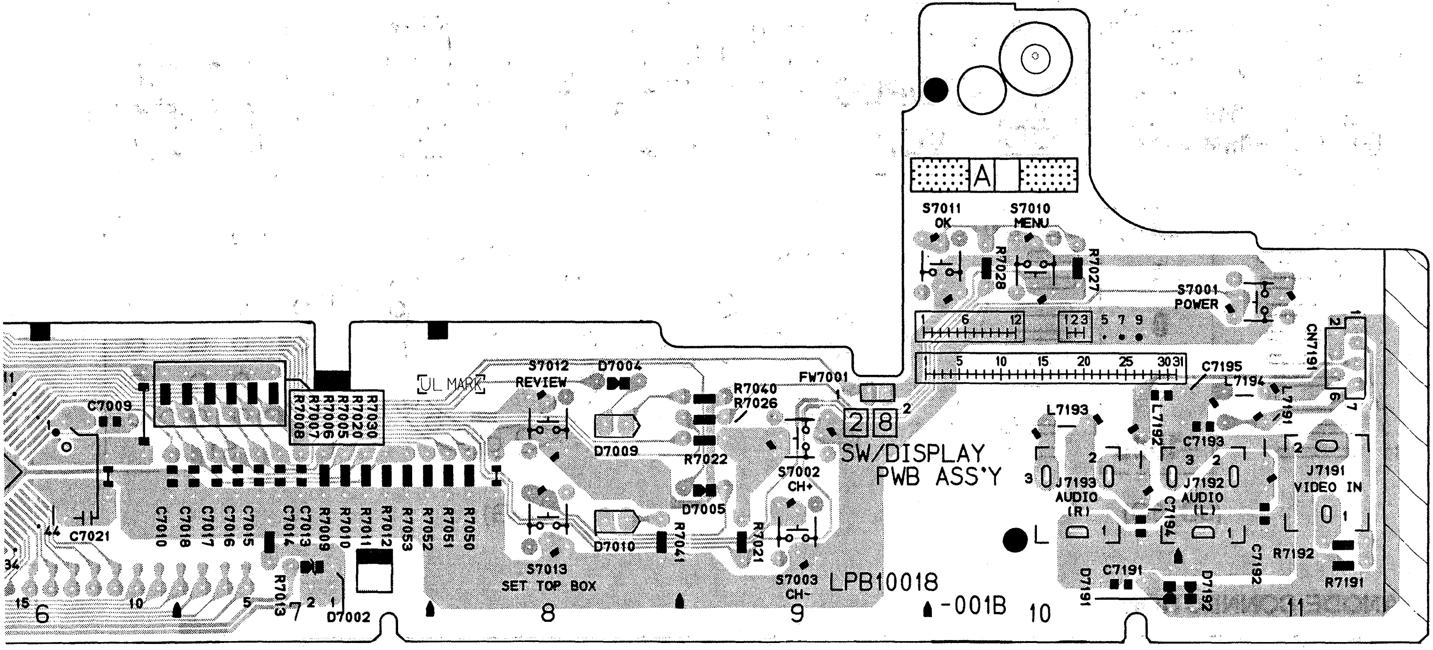

C
S7006
PLAY
S7016
JOG-
S7015
TV/VCR
(PLAY)
S7017
JOG+
B7006
B7008
B
R7037
B7005
B7007
R7033
B7001
R7026
S7007
STOP/
EJECT
R7034
R7036
R7038
B7004
R7032
S7014
SP/LP
R7031
D7001
C7008
L7001
C7007
R7001
R7003
R7004
R7002
IC7001
C7020
22
12
11
B7003
R7023
B7002
TP7001
TEST
TPGND
S7005
PAUSE
R7014
IC7002
C7003
CN7001
12
11
2
A
R7035
R7025
C7011
C7012
R7015
C7002
D7003
C7006
C7005
C7004
C7001
23
44
S7004
REC
S7008
FF
S7009
REW
3
1
33
34
35 34
31 30
25
21
DI7001
15
1
2
3
4
5
6

— JOG —


B7092
UN7091
8
UL MARK
3 7
B7091
CN7005
1
7
2
6
B7094
JOG PWB ASS'Y
LPB10018
-001B
B7093
1
A

— REC SAFETY —


3 2
REC SAFE
S7041
LPB10018
-001B
1
2
FW7001
UL MARK
REC SAFE
PWB AY
1 2

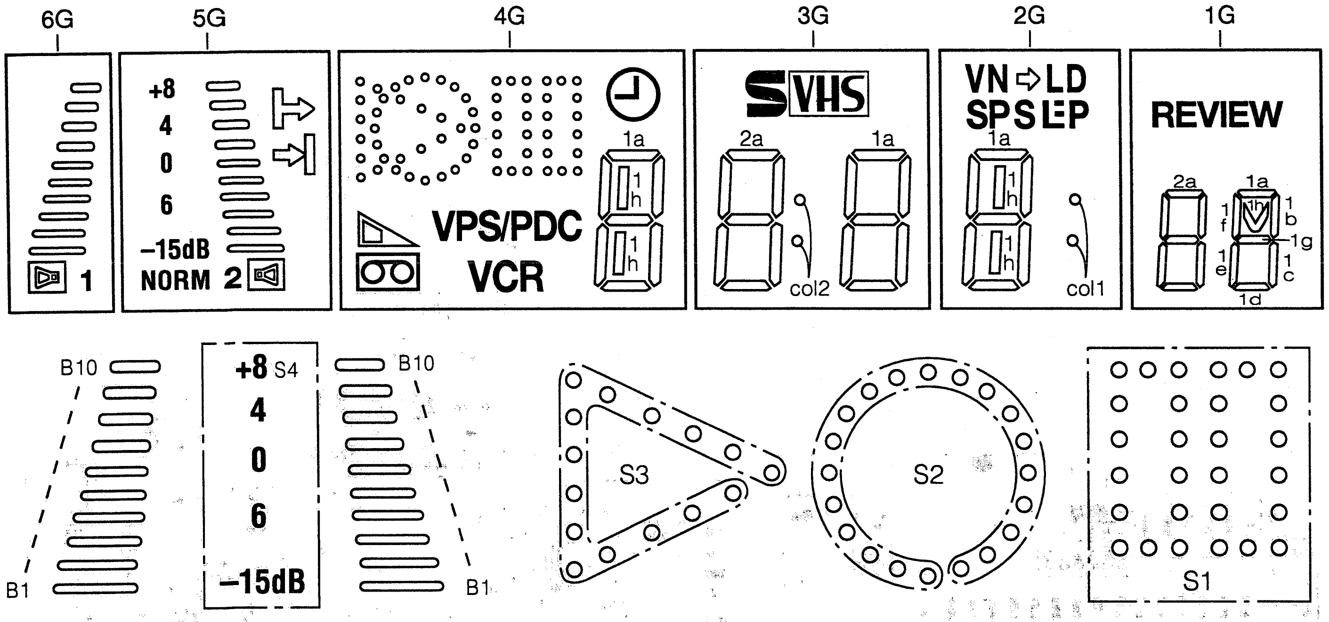

S7011
OK
S7010
MENU
R7028
R7027
S7001
POWER
CN7191
S7012
REVIEW
D7004
UL MARK
R7040
R7026
FW7001
C7195
L7194
L7193
L7192
C7193
L7191
C7009
R7030
R7020
R7005
R7006
R7007
R7008
D7009
R7022
S7002
CH+
SW/DISPLAY
PWB ASS'Y
J7193
AUDIO
(R)
J7192
AUDIO
(L)
J7191
VIDEO IN
C7194
C7021
C7010
C7018
C7017
C7016
C7015
C7014
C7013
R7009
R7010
R7011
R7012
R7053
R7052
R7051
R7050
D7005
D7010
R7041
R7021
R7013
D7002
S7013
SET TOP BOX
S7003
CH-
LPB10018
-001B
C7191
D7191
D7192
C7192
R7192
R7191
6
7
8
9
10
11

COMPONENT PARTS LOCATION GUIDE <SW/DISPALY>

REF.NO.	LOCATION		
CAPACITOR			
C7001	A	D	5A
C7002	A	D	3A
C7003	A	D	5A
C7004	A	D	5A
C7005	A	D	5A
C7006	A	D	5A
C7007	A	D	4B
C7008	A	D	4B
C7009	A	D	6A
C7010	A	D	6A
C7011	A	D	3A
C7012	A	D	3A
C7013	A	D	7A
C7014	A	D	7A
C7015	A	D	7A
C7016	A	D	7A
C7017	A	D	7A
C7018	A	D	7A
C7020	A	D	5A
C7021	A	D	6A
C7191	A	D	10A
C7192	A	D	11A
C7193	A	D	11A
C7194	A	D	10A
C7195	A	D	11A
CONNECTOR			
CN7001	A	D	1A
CN7191	A	D	11B
DIODE			
D7001	A	D	3B
D7002	A	D	7A
D7003	A	D	4A
D7004	A	D	8B
D7005	A	D	9A
D7009	A	D	8A
D7010	A	D	8A
D7191	A	D	10A
D7192	A	D	11A
IC			
IC7001	B	C	6A
IC7002	A	D	4A
JACK			
J7191	A	D	11A
J7192	A	D	11A
J7193	A	D	10A
COIL			
L7001	A	D	4B
L7191	A	D	11A
L7192	A	D	10A
L7193	A	D	10A
L7194	A	D	11A
RESISTOR			
R7001	A	D	5A
R7002	A	D	5A
R7003	A	D	5A
R7004	A	D	5A
R7005	A	D	7A
R7006	A	D	7A
R7007	A	D	7A
R7008	A	D	6A
R7009	A	D	7A
R7010	A	D	7A
R7011	A	D	7A
R7012	A	D	7A
R7013	A	D	7A
R7014	A	D	3A
R7015	A	D	3A
R7020	A	D	7B
R7021	A	D	9A
R7022	A	D	9A
R7023	A	D	1A
R7024	A	D	1B
R7025	A	D	2A
R7026	A	D	9A
R7027	A	D	10B
R7030	A	D	7B
R7031	A	D	3B
R7032	A	D	2B
R7033	A	D	2B
R7034	A	D	1B
R7035	A	D	2A
R7036	A	D	2A
R7037	A	D	1B
R7038	A	D	2A
R7040	A	D	9A
R7041	A	D	8A
R7050	A	D	8A
R7051	A	D	8A
R7052	A	D	7A
R7053	A	D	7A
R7191	A	D	11A
R7192	A	D	11A
SWITCH			
S7001	A	D	11B
S7002	A	D	9A
S7003	A	D	9A
S7004	A	D	3A
S7005	A	D	3A
S7006	A	D	1C
S7007	A	D	1B
S7008	A	D	2A
S7009	A	D	3A
S7010	A	D	10B
S7011	A	D	10B
S7012	A	D	8A
S7013	A	D	8A
S7014	A	D	2A
S7015	A	D	2B
S7016	A	D	1B
S7017	A	D	1B
TEST POINT			
TP7001	A	D	1A
TPGND	A	D	1A
OTHERS			
DI7001	A	D	6A
FW7001	A	D	9B

4.23 FDP GRID ASSIGNMENT AND ANODE CONNECTION (HR-S7500U)

GRID ASSIGNMENT


6G
5G
4G
3G
2G
1G
+8
4
0
6
-15dB
NORM
1
2
VPS/PDC
VCR
SVHS
VN⇨LD
SP S L:P
REVIEW
1a
2a
1h
col2
col1
1b
1f
1g
1e
1c
1d
B10
B1
S4
S3
S2
S1

(6G, 5G)

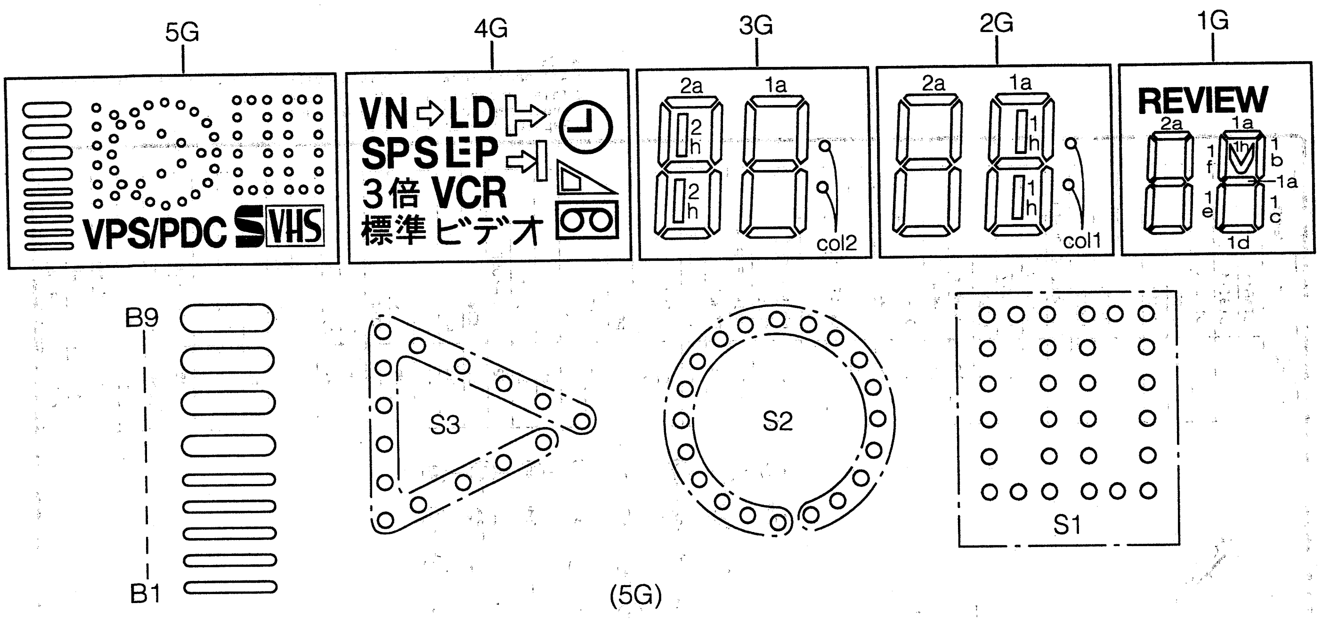
(4G)

ANODE CONNECTION

	6G	5G	4G	3G	2G	1G
P 1	—	⊢⇨	S2	1a	1a	1a
P 2	—	⇨|	S1	1b	1b	1b
P 3	—	S4	S3	1f	1f	1f
P 4	—	NORM	VPS/PDC	1g	1g	1g
P 5	1	2	🕒	1c	1c	1c
P 6	🔈	🔈	◺	1e	1e	1e
P 7	B10	B10	OO	1d	1d	1d
P 8	B9	B9	VCR	col2	1h	1h
P 9	B8	B8	1a	2a	col1	2a
P10	B7	B7	1b	2b	⇨	2b
P11	B6	B6	1f	2f	VN	2f
P12	B5	B5	1g	2g	LD	2g
P13	B4	B4	1c	2c	SP	2c
P14	B3	B3	1e	2e	S (SEP)	2e
P15	B2	B2	1d	2d	: (SEP)	2d
P16	B1	B1	1h	SVHS	LP(SEP)	REVIEW

4.23 FDP GRID ASSIGNMENT AND ANODE CONNECTION (HR-S4500U)

GRID ASSIGNMENT

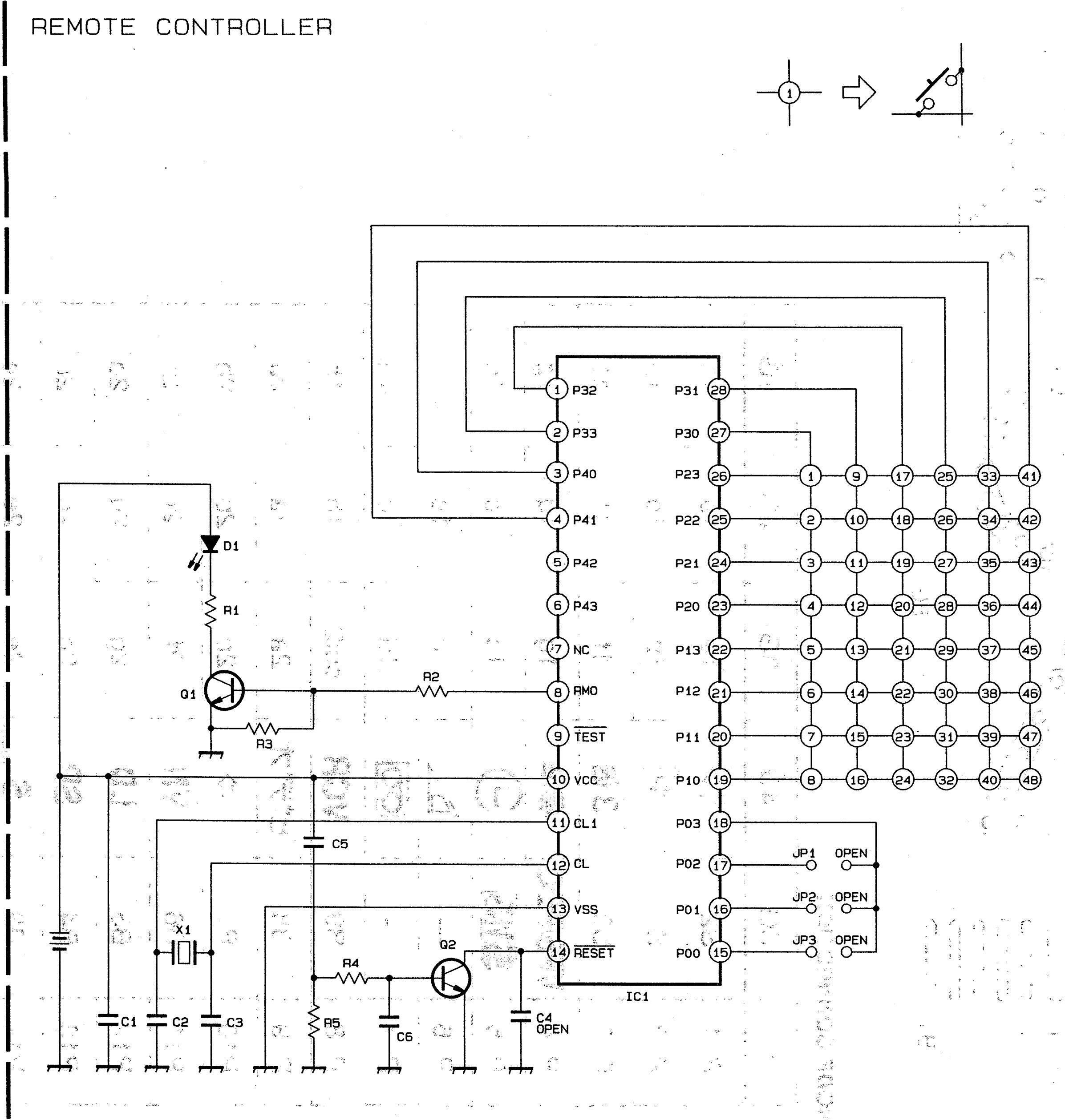

5G
4G
3G
2G
1G
VPS/PDC
SVHS
VN ⇨ LD
SP S LP
3倍 VCR
標準 ビデオ
2a
1a
2h
col2
1h
col1
REVIEW
1f
1b
1g
1e
1c
1d
B9
B1
S3
S2
S1
(5G)

ANODE CONNECTION

	5G	4G	3G	2G	1G
P 1	S2	⊢⇨	1a	1a	1a
P 2	S1	⇨|	1b	1b	1b
P 3	S3	3倍	1f	1f	1f
P 4	VPS/PDC	標準	1g	1g	1g
P 5	SVHS	◷	1c	1c	1c
P 6	—	⊿	1e	1e	1e
P 7	—	⊡⊡	1d	1d	1d
P 8	B9	VCR	col2	1h	1h
P 9	B8	ビデオ	2a	2a	2a
P10	B7	⇨	2b	2b	2b
P11	B6	VN	2f	2f	2f
P12	B5	LD	2g	2g	2g
P13	B4	SP	2c	2c	2c
P14	B3	S (SEP)	2e	2e	2e
P15	B2	: (SEP)	2d	2d	2d
P16	B1	LP (SEP)	2h	col1	REVIEW

4.22 REMOTE CONTROL SCHEMATIC DIAGRAM

NOTES:
1.All parts shown in this schematic are critical for safety.
2.This schematic is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.


REMOTE CONTROLLER
D1
R1
Q1
R2
R3
X1
C1
C2
C3
C4
OPEN
C5
C6
R4
R5
Q2
IC1
P32
P33
P40
P41
P42
P43
NC
RMO
TEST
VCC
CL1
CL
VSS
RESET
P31
P30
P23
P22
P21
P20
P13
P12
P11
P10
P03
P02
P01
P00
JP1
JP2
JP3
OPEN
OPEN
OPEN

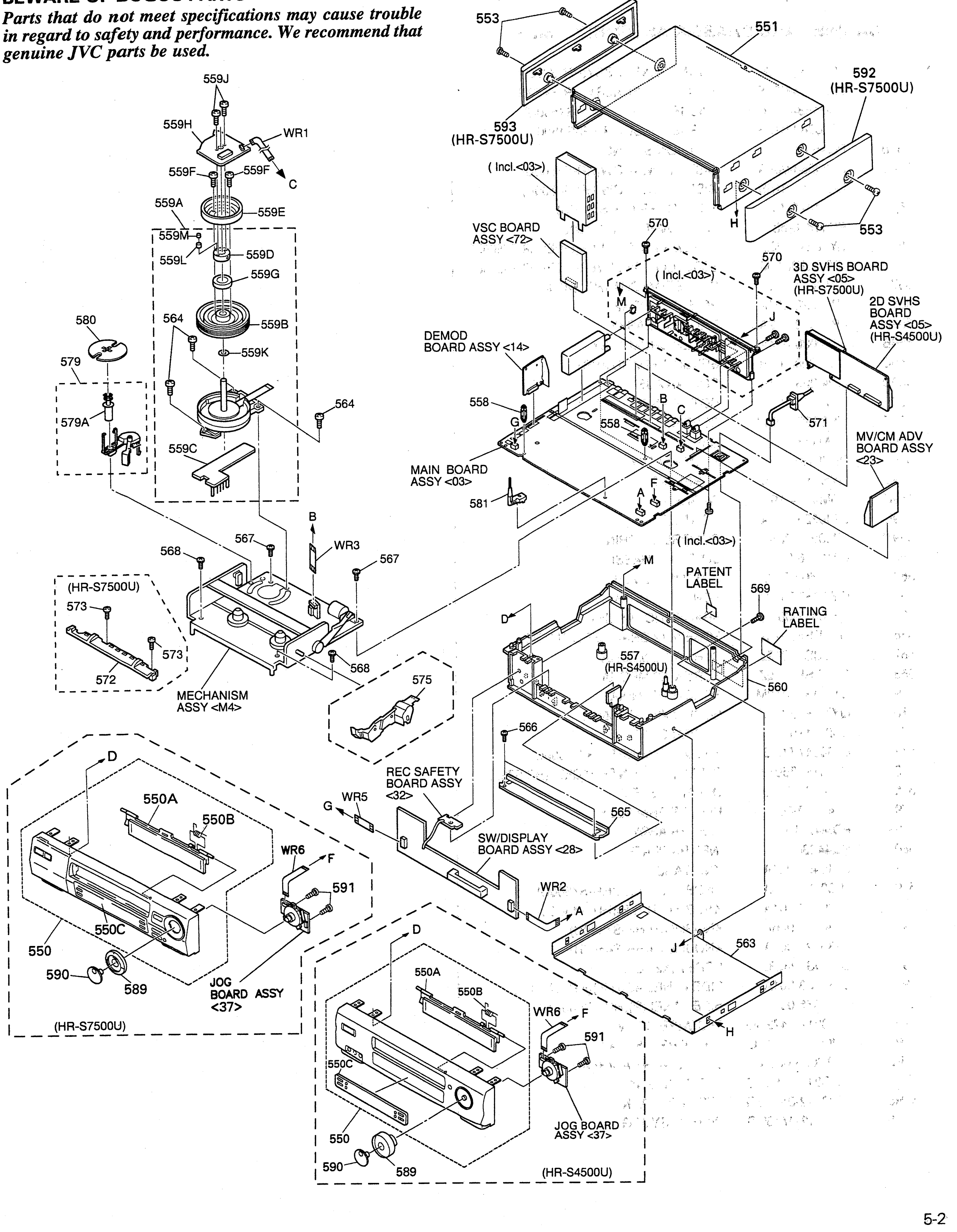
Key No.	Key Name
1	START+
2	DIGIT1
3	DIGIT4
4	STOP+
5	DATE+
6	CH+
7	DIGIT3
8	DIGIT6
9	CANCEL/C.RESET
10	DIGIT2
11	DIGIT7
12	DIGIT0
13	DIGIT8
14	TIMER
15	DIGIT5
16	DIGIT9
17	PROG.
18	CABLE/DSS
19	TV
20	PROG CHECK
21	SP/EP
22	SKIP SEARCH
23	POWER
24	MBR SET/A/B
25	START-
26	TV/VCR
27	RE-VIRE
28	STOP-
29	DATE-
30	CH-
31	DISPLAY
32	ENTER/OSD
33	MENU
34	REC
35	REW
36	PLAY
37	STOP
38	FF
39	PAUSE/STILL
40	OK
41	<</TV VOL-
42	--
43	--
44	--
45	^/TV CH+
46	v/TV CH-
47	--
48	<</TV VOL-
34+36	REC START
34+39	REC PAUSE

SECTION 5
PARTS LIST

5.2 CABINET AND CHASSIS ASSEMBLY <M2>

BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.



553
551
592
(HR-S7500U)
593
(HR-S7500U)
(Incl.<03>)
H
553
VSC BOARD
ASSY <72>
570
570
(Incl.<03>)
3D SVHS BOARD
ASSY <05>
(HR-S7500U)
2D SVHS
BOARD
ASSY <05>
(HR-S4500U)
M
J
DEMOD
BOARD ASSY <14>
558
G
558
B
C
571
MV/CM ADV
BOARD ASSY
<23>
MAIN BOARD
ASSY <03>
A
F
581
(Incl.<03>)
M
PATENT
LABEL
569
RATING
LABEL
D
557
(HR-S4500U)
560
559J
559H
WR1
559F
559F
C
559A
559E
559M
559L
559D
559G
580
564
559B
579
559K
579A
564
559C
B
WR3
567
568
567
(HR-S7500U)
573
573
572
568
MECHANISM
ASSY <M4>
575
566
D
550A
550B
REC SAFETY
BOARD ASSY
<32>
G
WR5
565
SW/DISPLAY
BOARD ASSY <28>
WR6
F
591
WR2
A
550C
550
590
589
JOG
BOARD ASSY
<37>
(HR-S7500U)
D
J
563
550A
550B
WR6
F
591
H
550C
550
590
589
JOG BOARD
ASSY <37>
(HR-S4500U)

********** *********************

CABINET AND CHASSIS ASSEMBLY <M2>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
⚠	550	LP10033-010C	FRONT PANEL ASSY(HR-S7500U)
		LP10125-021E	FRONT PANEL ASSY(HR-S4500U)
	550A	PQ21884-110-18	CASSETTE DOOR(HR-S7500U)
		LP20342-015B	CASSETTE DOOR(HR-S4500U)
	550B	PQ46448	TORSION SPRING
	550C	LP20068-009A	DISPLAY WINDOW(HR-S7500U)
		LP20343-015B	DISPLAY WINDOW(HR-S4500U)
⚠	551	PQ11676-75	TOP COVER (HR-S7500U)
		PQ11676-63	TOP COVER (HR-S4500U)
	553	QYTDSF3020M	SCREW,X4 TOP COVER(SIDE)(HR-S7500U)
		QYTDSF3010M	SCREW,X4 TOP COVER(SIDE)(HR-S4500U)
	557	LP40441-001A	SPACER(MECHA)(HR-S4500U)
	558	LP40226-001A	PC SUPPORT,X2
	559A	LP20319-002A	DRUM SUB ASSY
	559B	LP20030-014A	UPPER DRUM ASSY
	559C	LPA20002-01B	SENSOR BOARD ASSY
	559D	LP40028-001A	COLLAR ASSY
	559E	PDZ0179-2	ROTOR ASSY
	559F	QYSPSP3006Z	SCREW,X2
	559G	PDM4439	CAP
	559H	PDZ0181-2-2	STATOR ASSY
	559J	QYSPSP2606Z	SCREW,X2
	559K	PDM4444-19-2	WASHER
	559L	LP40323-001A	CONTACT
	559M	LP30004-005A	COMPRES. SPRING
⚠	560	LP10116-001C	BOTTOM CHASSIS
⚠	563	PQ11668-2-10	BOTTOM COVER
	564	QYTDST2610Z	SCREW,X3 DRUM
	565	LP30312-001B	BRACKET(CHASSIS)
	566	QYTDSF3010Z	SCREW,X2 BRACKET(CHASSIS)
	567	QYTDSF4012Z	SCREW,X2 MECHA
	568	QYTDSF3010Z	SCREW,X2 MECHA
	569	QYTDSF3010M	SCREW,TERMINAL
	570	QYTDSF3010Z	SCREW,X2 TERMINAL
⚠	571	QMP14K0-170	POWER CORD
	572	LP30247-001B	FRONT BRACKET(HR-S7500U)
	573	QYTDST2606Z	SCREW,X2 FRONT BRACKET(HR-S7500U)
	575	LP20324-002B	DOOR OPENER
	579	LP40370-001B	ROLLER ARM ASSY
	579A	PDM4311A-1	ROLLER ASSY
	580	PQ44230	INERTIA PLATE
	581	LP40407-001A	KNOB ASSY
	589	LP30120-006A	KNOB(SHUTTLE)(HR-S7500U)
		LP30120-001A	KNOB(SHUTTLE)(HR-S4500U)
	590	LP30121-006A	KNOB(JOG)(HR-S7500U)
		LP30121-001A	KNOB(JOG)(HR-S4500U)
	591	QYTDSF2608Z	SCREW,X2 JOG
	592	LP30153-001A	SIDE PANEL ASSY(L)(HR-S7500U)
	593	LP10036-001A	SIDE PANEL(R)(HR-S7500U)
	WR1	QUQ212-0422CG	FFC WIRE,DRUM
	WR2	QUQ112-1214CG	FFC WIRE,DISPLAY
	WR3	WJT0005-002A	E-CARD WIRE,AC/HEAD
	WR4	QUQ212-0456CG	FFC WIRE,S JACK
	WR5	QUQ212-0514CG	FFC WIRE,JACK
	WR6	QUQ112-0716CG	WIRE ASSY,JOG

5.4 ELECTRICAL PARTS LIST

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	

****

3D SVHS BOARD ASSEMBLY(HR-S7500U) <05>
2D SVHS BOARD ASSEMBLY(HR-S4500U) <05>

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		PW1	LPA10017-04B	2D SVHS BOARD ASSY,S4500U	
			LPA10033-03B	3D SVHS BOARD ASSY,S7500U	
		IC1001	JCP8008	IC	
		IC1002	VC2076DP	IC,S4500U	
			VC2076MP-XE	IC,S7500U	
		IC1201	JCP8013	IC,S4500U	
		IC1401	JCP8010-2	IC(DIGITAL),S7500U	
		IC1402	MN47V77S-XE	IC,S7500U	
		Q1008	DTC143TU	TRANSISTOR,S7500U	
		Q1009	DTC144WU	TRANSISTOR,S7500U	
			or RN1309	TRANSISTOR,S7500U	
			or UN521E	TRANSISTOR,S7500U	
		Q1010	DTC144WU	TRANSISTOR,S7500U	
			or RN1309	TRANSISTOR,S7500U	
			or UN521E	TRANSISTOR,S7500U	
		Q1011	2SA1576A/QR/-X	TRANSISTOR	
			or 2PA1576/R/-X	TRANSISTOR	
			or 2SB1218A/QR/-X	TRANSISTOR	
		Q1013	2SA1576A/QR/-X	TRANSISTOR	
			or 2SB1218A/QR/-X	TRANSISTOR	
			or 2PA1576/R/-X	TRANSISTOR	
		Q1016	DTC144WU	TRANSISTOR	
			or RN1309	TRANSISTOR	
			or UN521E	TRANSISTOR	
		Q1021	2SA1576A/QR/-X	TRANSISTOR,S7500U	
			or 2SB1218A/QR/-X	TRANSISTOR,S7500U	
			or 2PA1576/R/-X	TRANSISTOR,S7500U	
		Q1022	DTC144WU	TRANSISTOR,S7500U	
			or RN1309	TRANSISTOR,S7500U	
			or UN521E	TRANSISTOR,S7500U	
		Q1201	2SC4081/QRS/-X	TRANSISTOR,S4500U	
		Q1202	2SC4081/QRS/-X	TRANSISTOR,S4500U	
		Q1205	2SC4081/QRS/-X	TRANSISTOR,S4500U	
		Q1206	2SC4081/QRS/-X	TRANSISTOR,S4500U	
		Q1207	2SA1576A/QR/-X	TRANSISTOR,S4500U	
			or 2PA1576/R/-X	TRANSISTOR,S4500U	
			or 2SB1218A/QR/-X	TRANSISTOR,S4500U	
		Q1208	2SC4081/QRS/-X	TRANSISTOR,S4500U	
		Q1209	2SC4081/QRS/-X	TRANSISTOR,S4500U	
			or 2PC4081/R/-X	TRANSISTOR,S4500U	
			or 2SD1819A/QRS/-X	TRANSISTOR,S4500U	
		Q1210	2SC4081/QRS/-X	TRANSISTOR,S4500U	
			or 2SD1819A/QRS/-X	TRANSISTOR,S4500U	
			or 2PC4081/R/-X	TRANSISTOR,S4500U	
		Q1212	2SA1576A/QR/-X	TRANSISTOR,S4500U	
			or 2PA1576/R/-X	TRANSISTOR,S4500U	
			or 2SB1218A/QR/-X	TRANSISTOR,S4500U	
		Q1213	2SA1576A/QR/-X	TRANSISTOR,S4500U	
		Q1215	2SC4081/QRS/-X	TRANSISTOR,S4500U	
			or 2PC4081/R/-X	TRANSISTOR,S4500U	
			or 2SD1819A/QRS/-X	TRANSISTOR,S4500U	
		Q1217	2SC4081/QRS/-X	TRANSISTOR,S4500U	
		Q1218	2SA1576A/QR/-X	TRANSISTOR,S4500U	
		Q1219	2SA1576A/QR/-X	TRANSISTOR,S4500U	
		Q1401	2SC1317/RS/-T	TRANSISTOR,S7500U	
		Q1402	2SC4081/QRS/-X	TRANSISTOR,S7500U	
			or 2SD1819A/QRS/-X	TRANSISTOR,S7500U	
			or 2PC4081/R/-X	TRANSISTOR,S7500U	
		Q1403	2SC4081/QRS/-X	TRANSISTOR,S7500U	
			or 2PC4081/R/-X	TRANSISTOR,S7500U	
			or 2SD1819A/QRS/-X	TRANSISTOR,S7500U	
		Q1404	2SC4081/S/-X	TRANSISTOR,S7500U	
		Q1405	2SC4081/QRS/-X	TRANSISTOR,S7500U	
			or 2PC4081/R/-X	TRANSISTOR,S7500U	
			or 2SD1819A/QRS/-X	TRANSISTOR,S7500U	
		Q1406	2SA1576A/QR/-X	TRANSISTOR,S7500U	
			or 2SB1218A/QR/-X	TRANSISTOR,S7500U	
			or 2PA1576/R/-X	TRANSISTOR,S7500U	
		Q1407	2SA1576A/QR/-X	TRANSISTOR,S7500U	
			or 2PA1576/R/-X	TRANSISTOR,S7500U	
			or 2SB1218A/QR/-X	TRANSISTOR,S7500U	
		Q1408	2SA1576A/QR/-X	TRANSISTOR,S7500U	
			or 2SB1218A/QR/-X	TRANSISTOR,S7500U	
			or 2PA1576/R/-X	TRANSISTOR,S7500U	
		Q1409	2SA1576A/QR/-X	TRANSISTOR,S7500U	
			or 2PA1576/R/-X	TRANSISTOR,S7500U	
			or 2SB1218A/QR/-X	TRANSISTOR,S7500U	
		Q1410	2SC4081/QRS/-X	TRANSISTOR,S7500U	
			or 2SD1819A/QRS/-X	TRANSISTOR,S7500U	
			or 2PC4081/R/-X	TRANSISTOR,S7500U	
		Q1411	2SA1576A/QR/-X	TRANSISTOR,S7500U	
			or 2PA1576/R/-X	TRANSISTOR,S7500U	
			or 2SB1218A/QR/-X	TRANSISTOR,S7500U	
		Q1412	DTC144WU	TRANSISTOR,S7500U	
			or UN521E	TRANSISTOR,S7500U	
			or RN1309	TRANSISTOR,S7500U	
		Q1413	DTC144WU	TRANSISTOR,S7500U	
			or RN1309	TRANSISTOR,S7500U	
			or UN521E	TRANSISTOR,S7500U	
		Q1414	DTC144WU	TRANSISTOR,S7500U	
			or UN521E	TRANSISTOR,S7500U	
			or RN1309	TRANSISTOR,S7500U	
		Q1416	DTC144WU	TRANSISTOR,S7500U	
			or RN1309	TRANSISTOR,S7500U	
			or UN521E	TRANSISTOR,S7500U	
		Q1417	2SC4081/QRS/-X	TRANSISTOR,S7500U	
			or 2SD1819A/QRS/-X	TRANSISTOR,S7500U	
			or 2PC4081/R/-X	TRANSISTOR,S7500U	
		Q1418	DTC144WU	TRANSISTOR,S7500U	
			or RN1309	TRANSISTOR,S7500U	
			or UN521E	TRANSISTOR,S7500U	
		Q1419	DTA144WU	TRANSISTOR,S7500U	
			or UN511E	TRANSISTOR,S7500U	
		D1401	RD3.9ES/B2/-T2	ZENER DIODE,S7500U	
		D1402	1SS133	DIODE,S7500U	
			or 1N4148M	DIODE,S7500U	
		R1002	NRSA02J-103X	MG RESISTOR,S4500U	10kΩ,1/10W
			NRSA02J-562X	MG RESISTOR,S7500U	5.6kΩ,1/10W
		R1003	NRSA02J-221X	MG RESISTOR,S4500U	220Ω,1/10W
			NRSA02J-101X	MG RESISTOR,S7500U	100Ω,1/10W
		R1004	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R1006	NRSA02J-224X	MG RESISTOR,S4500U	220kΩ,1/10W
		R1007	NRSA02J-0R0X	MG RESISTOR,S4500U	0Ω,1/10W
			NRSA02J-822X	MG RESISTOR,S7500U	8.2kΩ,1/10W
		R1008	NRSA02J-103X	MG RESISTOR,S7500U	10kΩ,1/10W
		R1009	NRSA02J-225X	MG RESISTOR	2.2MΩ,1/10W
		R1010	NRVA02D-332X	CMF RESISTOR	3.3kΩ,1/10W
		R1011	NRVA02D-332X	CMF RESISTOR	3.3kΩ,1/10W

REF No.	PART No.	PART NAME, DESCRIPTION	
R1012	NRVA02D-152X	CMF RESISTOR	1.5kΩ,1/10W
R1013	NRVA02D-471X	CMF RESISTOR	470Ω,1/10W
R1014	NRVA02D-102X	CMF RESISTOR	1kΩ,1/10W
R1015	NRVA02D-102X	CMF RESISTOR	1kΩ,1/10W
R1016	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
R1017	NRSA02J-162X	MG RESISTOR	1.6kΩ,1/10W
R1018	NRSA02J-151X	MG RESISTOR	150Ω,1/10W
R1019	NRSA02J-391X	MG RESISTOR	390Ω,1/10W
R1020	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
R1021	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
R1035	NRSA02J-223X	MG RESISTOR,S7500U	22kΩ,1/10W
R1036	NRSA02J-103X	MG RESISTOR,S7500U	10kΩ,1/10W
R1038	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R1039	NRSA02J-394X	MG RESISTOR	390kΩ,1/10W
R1040	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
R1041	QRE123J-391X	RESISTOR	390Ω,1/2W
R1049	NRSA02J-475X	MG RESISTOR	4.7MΩ,1/10W
R1050	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
R1051	QRE123J-391X	RESISTOR	390Ω,1/2W
R1070	NRSA02J-391X	MG RESISTOR,S7500U	390Ω,1/10W
R1071	NRSA02J-224X	MG RESISTOR,S7500U	220kΩ,1/10W
R1072	NRSA02J-103X	MG RESISTOR,S7500U	10kΩ,1/10W
R1201	NRSA02J-153X	MG RESISTOR,S4500U	15kΩ,1/10W
R1202	NRSA02J-223X	MG RESISTOR,S4500U	22kΩ,1/10W
R1203	NRSA02J-681X	MG RESISTOR,S4500U	680Ω,1/10W
R1204	NRSA02J-272X	MG RESISTOR,S4500U	2.7kΩ,1/10W
R1205	NRSA02J-182X	MG RESISTOR,S4500U	1.8kΩ,1/10W
R1206	NRSA02J-101X	MG RESISTOR,S4500U	100Ω,1/10W
R1207	NRSA02J-101X	MG RESISTOR,S4500U	100Ω,1/10W
R1208	NRSA02J-471X	MG RESISTOR,S4500U	470Ω,1/10W
R1209	NRSA02J-563X	MG RESISTOR,S4500U	56kΩ,1/10W
R1210	NRSA02J-103X	MG RESISTOR,S4500U	10kΩ,1/10W
R1211	NRSA02J-821X	MG RESISTOR,S4500U	820Ω,1/10W
R1212	NRSA02J-331X	MG RESISTOR,S4500U	330Ω,1/10W
R1213	NRSA02J-0R0X	MG RESISTOR,S4500U	0Ω,1/10W
R1214	NRSA02J-0R0X	MG RESISTOR,S4500U	0Ω,1/10W
R1215	NRSA02J-0R0X	MG RESISTOR,S4500U	0Ω,1/10W
R1216	NRSA02J-0R0X	MG RESISTOR,S4500U	0Ω,1/10W
R1218	NRSA02J-0R0X	MG RESISTOR,S4500U	0Ω,1/10W
R1219	NRSA02J-0R0X	MG RESISTOR,S4500U	0Ω,1/10W
R1220	NRSA02J-0R0X	MG RESISTOR,S4500U	0Ω,1/10W
R1223	NRSA02J-0R0X	MG RESISTOR,S4500U	0Ω,1/10W
R1225	NRSA02J-0R0X	MG RESISTOR,S4500U	0Ω,1/10W
R1226	NRSA02J-123X	MG RESISTOR,S4500U	12kΩ,1/10W
R1227	NRSA02J-180X	MG RESISTOR,S4500U	18Ω,1/10W
R1228	NRSA02J-822X	MG RESISTOR,S4500U	8.2kΩ,1/10W
R1229	NRSA02J-471X	MG RESISTOR,S4500U	470Ω,1/10W
R1230	NRSA02J-102X	MG RESISTOR,S4500U	1kΩ,1/10W
R1231	NRSA02J-151X	MG RESISTOR,S4500U	150Ω,1/10W
R1232	NRSA02J-272X	MG RESISTOR,S4500U	2.7kΩ,1/10W
R1233	NRSA02J-681X	MG RESISTOR,S4500U	680Ω,1/10W
R1234	NRSA02J-222X	MG RESISTOR,S4500U	2.2kΩ,1/10W
R1235	NRSA02J-391X	MG RESISTOR,S4500U	390Ω,1/10W
R1236	NRSA02J-102X	MG RESISTOR,S4500U	1kΩ,1/10W
R1237	NRSA02J-123X	MG RESISTOR,S4500U	12kΩ,1/10W
R1238	NRSA02J-223X	MG RESISTOR,S4500U	22kΩ,1/10W
R1239	NRSA02J-471X	MG RESISTOR,S4500U	470Ω,1/10W
R1242	NRSA02J-471X	MG RESISTOR,S4500U	470Ω,1/10W
R1243	NRSA02J-272X	MG RESISTOR,S4500U	2.7kΩ,1/10W
R1244	NRSA02J-470X	MG RESISTOR,S4500U	47Ω,1/10W
R1245	NRSA02J-470X	MG RESISTOR,S4500U	47Ω,1/10W

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		R1246	NRSA02J-151X	MG RESISTOR,S4500U	150Ω,1/10W
		R1247	NRSA02J-102X	MG RESISTOR,S4500U	1kΩ,1/10W
		R1248	NRSA02J-821X	MG RESISTOR,S4500U	820Ω,1/10W
		R1249	NRSA02J-152X	MG RESISTOR,S4500U	1.5kΩ,1/10W
		R1250	NRSA02J-102X	MG RESISTOR,S4500U	1kΩ,1/10W
		R1251	NRSA02J-102X	MG RESISTOR,S4500U	1kΩ,1/10W
		R1256	NRSA02J-102X	MG RESISTOR,S4500U	1kΩ,1/10W
		R1259	NRSA02J-272X	MG RESISTOR,S4500U	2.7kΩ,1/10W
		R1260	NRSA02J-101X	MG RESISTOR,S4500U	100Ω,1/10W
		R1261	NRSA02J-271X	MG RESISTOR,S4500U	270Ω,1/10W
		R1262	NRSA02J-332X	MG RESISTOR,S4500U	3.3kΩ,1/10W
		R1263	NRSA02J-101X	MG RESISTOR,S4500U	100Ω,1/10W
		R1264	NRSA02J-332X	MG RESISTOR,S4500U	3.3kΩ,1/10W
		R1401	NRSA02J-271X	MG RESISTOR,S7500U	270Ω,1/10W
		R1402	NRSA02J-101X	MG RESISTOR,S7500U	100Ω,1/10W
		R1403	NRSA02J-223X	MG RESISTOR,S7500U	22kΩ,1/10W
		R1404	NRSA02J-123X	MG RESISTOR,S7500U	12kΩ,1/10W
		R1405	NRSA02J-102X	MG RESISTOR,S7500U	1kΩ,1/10W
		R1406	NRSA02J-471X	MG RESISTOR,S7500U	470Ω,1/10W
		R1407	NRSA02J-102X	MG RESISTOR,S7500U	1kΩ,1/10W
		R1408	NRSA02J-222X	MG RESISTOR,S7500U	2.2kΩ,1/10W
		R1409	NRSA02J-681X	MG RESISTOR,S7500U	680Ω,1/10W
		R1410	NRSA02J-333X	MG RESISTOR,S7500U	33kΩ,1/10W
		R1411	NRSA02J-393X	MG RESISTOR,S7500U	39kΩ,1/10W
		R1412	NRSA02J-104X	MG RESISTOR,S7500U	100kΩ,1/10W
		R1413	NRSA02J-471X	MG RESISTOR,S7500U	470Ω,1/10W
		R1414	NRSA02J-821X	MG RESISTOR,S7500U	820Ω,1/10W
		R1415	NRSA02J-182X	MG RESISTOR,S7500U	1.8kΩ,1/10W
		R1416	NRSA02J-471X	MG RESISTOR,S7500U	470Ω,1/10W
		R1417	NRSA02J-821X	MG RESISTOR,S7500U	820Ω,1/10W
		R1418	NRSA02J-391X	MG RESISTOR,S7500U	390Ω,1/10W
		R1419	NRSA02J-221X	MG RESISTOR,S7500U	220Ω,1/10W
		R1420	NRSA02J-152X	MG RESISTOR,S7500U	1.5kΩ,1/10W
		R1422	NRSA02J-471X	MG RESISTOR,S7500U	470Ω,1/10W
		R1423	NRSA02J-821X	MG RESISTOR,S7500U	820Ω,1/10W
		R1425	NRSA02J-102X	MG RESISTOR,S7500U	1kΩ,1/10W
		R1428	NRSA02J-0R0X	MG RESISTOR,S7500U	0Ω,1/10W
		R1429	NRSA02J-0R0X	MG RESISTOR,S7500U	0Ω,1/10W
		R1430	NRSA02J-471X	MG RESISTOR,S7500U	470Ω,1/10W
		R1431	NRSA02J-471X	MG RESISTOR,S7500U	470Ω,1/10W
		R1432	NRSA02J-471X	MG RESISTOR,S7500U	470Ω,1/10W
		R1433	NRSA02J-471X	MG RESISTOR,S7500U	470Ω,1/10W
		R1434	NRSA02J-473X	MG RESISTOR,S7500U	47kΩ,1/10W
		R1435	NRSA02J-242X	MG RESISTOR,S7500U	2.4kΩ,1/10W
		R1436	NRSA02J-103X	MG RESISTOR,S7500U	10kΩ,1/10W
		R1437	NRSA02J-682X	MG RESISTOR,S7500U	6.8kΩ,1/10W
		R1438	NRSA02J-821X	MG RESISTOR,S7500U	820Ω,1/10W
		R1439	NRSA02J-101X	MG RESISTOR,S7500U	100Ω,1/10W
		R1440	NRSA02J-223X	MG RESISTOR,S7500U	22kΩ,1/10W
		R1442	NRSA02J-223X	MG RESISTOR,S7500U	22kΩ,1/10W
		R1443	NRSA02J-472X	MG RESISTOR,S7500U	4.7kΩ,1/10W
		R1444	NRSA02J-221X	MG RESISTOR,S7500U	220Ω,1/10W
		R1445	NRSA02J-102X	MG RESISTOR,S7500U	1kΩ,1/10W
		R1446	NRSA02J-222X	MG RESISTOR,S7500U	2.2kΩ,1/10W
		R1447	NRSA02J-152X	MG RESISTOR,S7500U	1.5kΩ,1/10W
		R1448	NRSA02J-122X	MG RESISTOR,S7500U	1.2kΩ,1/10W
		R1449	NRSA02J-470X	MG RESISTOR,S7500U	47Ω,1/10W
		R1451	NRSA02J-681X	MG RESISTOR,S7500U	680Ω,1/10W
		R1452	NRSA02J-102X	MG RESISTOR,S7500U	1kΩ,1/10W
		R1454	NRSA02J-102X	MG RESISTOR,S7500U	1kΩ,1/10W
		R1455	NRSA02J-102X	MG RESISTOR,S7500U	1kΩ,1/10W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R1456	NRSA02J-102X	MG RESISTOR,S7500U	1kΩ,1/10W
R1457	NRSA02J-102X	MG RESISTOR,S7500U	1kΩ,1/10W
R1458	NRSA02J-102X	MG RESISTOR,S7500U	1kΩ,1/10W
R1459	NRSA02J-102X	MG RESISTOR,S7500U	1kΩ,1/10W
R1460	NRSA02J-104X	MG RESISTOR,S7500U	100kΩ,1/10W
R1461	NRSA02J-222X	MG RESISTOR,S7500U	2.2kΩ,1/10W
R1462	NRSA02J-222X	MG RESISTOR,S7500U	2.2kΩ,1/10W
R1463	NRSA02J-682X	MG RESISTOR,S7500U	6.8kΩ,1/10W
R1465	NRSA02J-821X	MG RESISTOR,S7500U	820Ω,1/10W
R1467	NRSA02J-102X	MG RESISTOR,S7500U	1kΩ,1/10W
R1468	NRSA02J-222X	MG RESISTOR,S7500U	2.2kΩ,1/10W
R1470	NRSA02J-752X	MG RESISTOR,S7500U	7.5kΩ,1/10W
R1471	NRSA02J-333X	MG RESISTOR,S7500U	33kΩ,1/10W
R1472	NRSA02J-103X	MG RESISTOR,S7500U	10kΩ,1/10W
R1473	NRSA02J-333X	MG RESISTOR,S7500U	33kΩ,1/10W
VR1201	QVPA606-103Z	V RESISTOR,Y LEVEL ADJ,S4500U	
VR1401	QVPA606-103Z	V RESISTOR,EE Y LEVEL ADJ,S7500U	
C1001	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
C1002	QEKJ1HM-474	E CAPACITOR	0.47µF,50V
C1003	QEKJ1CM-106	E CAPACITOR	10µF,16V
C1005	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
C1006	NCB21HK-103X	CAPACITOR	0.01µF,50V
C1007	NCF21EZ-104X	CAPACITOR,S7500U	0.1µF,25V
C1008	NCF21EZ-104X	CAPACITOR,S7500U	0.1µF,25V
C1009	NCB21HK-103X	CAPACITOR	0.01µF,50V
C1010	NCF21EZ-104X	CAPACITOR	0.1µF,25V
C1011	NDC21HJ-330X	CAPACITOR	33pF,50V
C1013	NCF21EZ-104X	CAPACITOR	0.1µF,25V
C1014	QEKJ1HM-225	E CAPACITOR	2.2µF,50V
C1015	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
C1016	QEKJ1HM-225	E CAPACITOR	2.2µF,50V
C1019	NCB21HK-103X	CAPACITOR	0.01µF,50V
C1020	NCB21HK-103X	CAPACITOR	0.01µF,50V
C1021	NCB21HK-103X	CAPACITOR	0.01µF,50V
C1022	QEKJ1HM-105	E CAPACITOR	1µF,50V
C1023	QEKJ1HM-225	E CAPACITOR	2.2µF,50V
C1024	NCB21HK-103X	CAPACITOR	0.01µF,50V
C1026	NCF21EZ-104X	CAPACITOR	0.1µF,25V
C1027	NCF21EZ-104X	CAPACITOR	0.1µF,25V
C1028	QEKJ0JM-107	E CAPACITOR,S7500U	100µF,6.3V
	QEKJ0JM-337	E CAPACITOR,S4500U	330µF,6.3V
C1029	QEKJ1HM-104	E CAPACITOR	0.1µF,50V
C1030	QEKJ1HM-105	E CAPACITOR	1µF,50V
C1031	QEKJ1HM-225	E CAPACITOR	2.2µF,50V
C1032	QEKJ1HM-105	E CAPACITOR	1µF,50V
C1033	QEKJ1HM-105	E CAPACITOR	1µF,50V
C1034	QEKJ1HM-105	E CAPACITOR	1µF,50V
C1035	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
C1036	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
C1037	QEKJ1HM-225	E CAPACITOR	2.2µF,50V
C1038	QEKJ1HM-225	E CAPACITOR	2.2µF,50V
C1039	QEKJ0JM-337	E CAPACITOR	330µF,6.3V
C1040	NCB21HK-103X	CAPACITOR	0.01µF,50V
C1041	NDC21HG-301X	CAPACITOR	300pF,50V
C1042	NDC21HG-301X	CAPACITOR	300pF,50V
C1043	NDC21HG-221X	CAPACITOR	220pF,50V
C1044	NDC21HG-820X	CAPACITOR	82pF,50V
C1045	NCB21HK-103X	CAPACITOR	0.01µF,50V
C1046	NDC21HG-271X	CAPACITOR	270pF,50V
C1047	NDC21HJ-101X	CAPACITOR	100pF,50V
C1048	NDC21HJ-181X	CAPACITOR	180pF,50V

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C1049	NDC21HG-301X	CAPACITOR	300pF,50V
C1050	NDC21HG-301X	CAPACITOR	300pF,50V
C1077	QEKJ1CM-107	E CAPACITOR	100µF,16V
C1078	NCB21HK-103X	CAPACITOR	0.01µF,50V
C1079	QETC0JM-108	E CAPACITOR	1000µF,6.3V
C1082	NCB21HK-103X	CAPACITOR	0.01µF,50V
C1095	NCF21EZ-104X	CAPACITOR,S7500U	0.1µF,25V
C1201	QEKJ0JM-337	E CAPACITOR,S4500U	330µF,6.3V
C1202	NCB21HK-103X	CAPACITOR,S4500U	0.01µF,50V
C1203	NCF21EZ-104X	CAPACITOR,S4500U	0.1µF,25V
C1204	NCF21EZ-104X	CAPACITOR,S4500U	0.1µF,25V
C1205	NCF21EZ-104X	CAPACITOR,S4500U	0.1µF,25V
C1206	NCF21EZ-104X	CAPACITOR,S4500U	0.1µF,25V
C1207	NCF21EZ-104X	CAPACITOR,S4500U	0.1µF,25V
C1208	NCF21EZ-104X	CAPACITOR,S4500U	0.1µF,25V
C1209	NCF21CZ-105X	CAPACITOR,S4500U	1µF,16V
C1210	NCF21EZ-104X	CAPACITOR,S4500U	0.1µF,25V
C1211	QEKJ0JM-337	E CAPACITOR,S4500U	330µF,6.3V
C1212	NCF21EZ-104X	CAPACITOR,S4500U	0.1µF,25V
C1213	NCB21EK-473X	CAPACITOR,S4500U	0.047µF,25V
C1214	NCB21HK-103X	CAPACITOR,S4500U	0.01µF,50V
C1215	NCB21HK-102X	CAPACITOR,S4500U	0.001µF,50V
C1216	NCF21CZ-105X	CAPACITOR,S4500U	1µF,16V
C1217	NCF21EZ-104X	CAPACITOR,S4500U	0.1µF,25V
C1218	QEKJ0JM-107	E CAPACITOR,S4500U	100µF,6.3V
C1219	NCF21EZ-104X	CAPACITOR,S4500U	0.1µF,25V
C1220	NCF21EZ-104X	CAPACITOR,S4500U	0.1µF,25V
C1221	QEKJ1EM-475	E CAPACITOR,S4500U	4.7µF,25V
C1222	NCF21EZ-104X	CAPACITOR,S4500U	0.1µF,25V
C1223	NCB21HK-103X	CAPACITOR,S4500U	0.01µF,50V
C1224	NDC21HJ-390X	CAPACITOR,S4500U	39pF,50V
C1225	NDC21HJ-220X	CAPACITOR,S4500U	22pF,50V
C1226	NDC21HJ-6R0X	CAPACITOR,S4500U	6pF,50V
C1227	NCB21HK-103X	CAPACITOR,S4500U	0.01µF,50V
C1228	NCB21HK-103X	CAPACITOR,S4500U	0.01µF,50V
C1229	NDC21HJ-470X	CAPACITOR,S4500U	47pF,50V
C1230	NDC21HJ-100X	CAPACITOR,S4500U	10pF,50V
C1231	NCF21EZ-104X	CAPACITOR,S4500U	0.1µF,25V
C1232	NCF21EZ-104X	CAPACITOR,S4500U	0.1µF,25V
C1233	NDC21HJ-680X	CAPACITOR,S4500U	68pF,50V
C1234	NDC21HJ-391X	CAPACITOR,S4500U	390pF,50V
C1235	NDC21HJ-8R0X	CAPACITOR,S4500U	8pF,50V
C1236	NCB21HK-103X	CAPACITOR,S4500U	0.01µF,50V
C1237	NDC21HJ-221X	CAPACITOR,S4500U	220pF,50V
C1238	NCB21HK-103X	CAPACITOR,S4500U	0.01µF,50V
C1239	NDC21HJ-470X	CAPACITOR,S4500U	47pF,50V
C1240	NDC21HJ-470X	CAPACITOR,S4500U	47pF,50V
C1245	NDC21HJ-120X	CAPACITOR,S4500U	12pF,50V
C1246	NDC21HJ-470X	CAPACITOR,S4500U	47pF,50V
C1247	NDC21HJ-470X	CAPACITOR,S4500U	47pF,50V
C1248	NDC21HJ-470X	CAPACITOR,S4500U	47pF,50V
C1250	NCF21EZ-104X	CAPACITOR,S4500U	0.1µF,25V
C1251	NCF21EZ-104X	CAPACITOR,S4500U	0.1µF,25V
C1252	NCF21EZ-104X	CAPACITOR,S4500U	0.1µF,25V
C1401	QEKJ1CM-336	E CAPACITOR,S7500U	33µF,16V
C1402	NCB21HK-103X	CAPACITOR,S7500U	0.01µF,50V
C1403	NCB21HK-103X	CAPACITOR,S7500U	0.01µF,50V
C1404	NCB21HK-103X	CAPACITOR,S7500U	0.01µF,50V
C1405	NDC21HJ-220X	CAPACITOR,S7500U	22pF,50V
C1406	NDC21HJ-6R0X	CAPACITOR,S7500U	6pF,50V
C1407	NDC21HJ-390X	CAPACITOR,S7500U	39pF,50V

REF No.	PART No.	PART NAME, DESCRIPTION	
C1408	NCF21EZ-104X	CAPACITOR,S7500U	0.1μF,25V
C1409	NCB21HK-103X	CAPACITOR,S7500U	0.01μF,50V
C1410	QEKJ0JM-337	E CAPACITOR,S7500U	330μF,6.3V
C1411	QEKJ1CM-106	E CAPACITOR,S7500U	10μF,16V
C1412	NCF21EZ-104X	CAPACITOR,S7500U	0.1μF,25V
C1413	NCF21EZ-104X	CAPACITOR,S7500U	0.1μF,25V
C1414	NCB21HK-103X	CAPACITOR,S7500U	0.01μF,50V
C1415	NDC21HJ-221X	CAPACITOR,S7500U	220pF,50V
C1416	NDC21HJ-391X	CAPACITOR,S7500U	390pF,50V
C1417	NDC21HJ-680X	CAPACITOR,S7500U	68pF,50V
C1418	NDC21HJ-8R0X	CAPACITOR,S7500U	8pF,50V
C1419	NCF21EZ-104X	CAPACITOR,S7500U	0.1μF,25V
C1420	NCF21EZ-104X	CAPACITOR,S7500U	0.1μF,25V
C1421	NDC21HJ-680X	CAPACITOR,S7500U	68pF,50V
C1422	NDC21HJ-330X	CAPACITOR,S7500U	33pF,50V
C1424	NCF21EZ-104X	CAPACITOR,S7500U	0.1μF,25V
C1425	QEKJ0JM-337	E CAPACITOR,S7500U	330μF,6.3V
C1426	NCB21HK-103X	CAPACITOR,S7500U	0.01μF,50V
C1427	NCF21EZ-104X	CAPACITOR,S7500U	0.1μF,25V
C1428	NCF21EZ-104X	CAPACITOR,S7500U	0.1μF,25V
C1429	NCF21EZ-104X	CAPACITOR,S7500U	0.1μF,25V
C1430	NCF21EZ-104X	CAPACITOR,S7500U	0.1μF,25V
C1431	NCF21EZ-104X	CAPACITOR,S7500U	0.1μF,25V
C1432	QEKJ1EM-475	E CAPACITOR,S7500U	4.7μF,25V
C1433	NCF21EZ-104X	CAPACITOR,S7500U	0.1μF,25V
C1434	QEKJ0JM-337	E CAPACITOR,S7500U	330μF,6.3V
C1435	QEKJ1HM-105	E CAPACITOR,S7500U	1μF,50V
C1436	NCF21EZ-104X	CAPACITOR,S7500U	0.1μF,25V
C1437	NCF21EZ-104X	CAPACITOR,S7500U	0.1μF,25V
C1438	NCF21EZ-104X	CAPACITOR,S7500U	0.1μF,25V
C1439	NCF21EZ-104X	CAPACITOR,S7500U	0.1μF,25V
C1440	NCF21EZ-104X	CAPACITOR,S7500U	0.1μF,25V
C1441	NCF21EZ-104X	CAPACITOR,S7500U	0.1μF,25V
C1442	NCF21EZ-104X	CAPACITOR,S7500U	0.1μF,25V
C1443	NCF21EZ-104X	CAPACITOR,S7500U	0.1μF,25V
C1444	QEKJ1HM-105	E CAPACITOR,S7500U	1μF,50V
C1445	NCF21EZ-104X	CAPACITOR,S7500U	0.1μF,25V
C1446	NCB21EK-104X	CAPACITOR,S7500U	0.1μF,25V
C1447	NCB21HK-222X	CAPACITOR,S7500U	0.0022μF,50V
C1448	NCF21EZ-104X	CAPACITOR,S7500U	0.1μF,25V
C1449	QEKJ0JM-337	E CAPACITOR,S7500U	330μF,6.3V
C1450	NCF21EZ-104X	CAPACITOR,S7500U	0.1μF,25V
C1451	NCF21EZ-104X	CAPACITOR,S7500U	0.1μF,25V
C1454	NDC21HJ-220X	CAPACITOR,S7500U	22pF,50V
C1455	NDC21HJ-390X	CAPACITOR,S7500U	39pF,50V
C1457	NCF21EZ-104X	CAPACITOR,S7500U	0.1μF,25V
C1458	NCB21HK-103X	CAPACITOR,S7500U	0.01μF,50V
C1459	NDC21HJ-470X	CAPACITOR,S7500U	47pF,50V
C1460	NDC21HJ-470X	CAPACITOR,S7500U	47pF,50V
C1461	NDC21HJ-470X	CAPACITOR,S7500U	47pF,50V
C1463	NRSA02J-0R0X	MG RESISTOR,S7500U	0Ω,1/10W
C1465	NDC21HJ-470X	CAPACITOR,S7500U	47pF,50V
C1468	NDC21HJ-470X	CAPACITOR,S7500U	47pF,50V
C1469	NDC21HJ-470X	CAPACITOR,S7500U	47pF,50V
C1470	NDC21HJ-470X	CAPACITOR,S7500U	47pF,50V
C1471	NDC21HJ-470X	CAPACITOR,S7500U	47pF,50V
C1472	NDC21HJ-470X	CAPACITOR,S7500U	47pF,50V
C1473	NDC21HJ-470X	CAPACITOR,S7500U	47pF,50V
C1474	NCB21HK-223X	CAPACITOR,S7500U	0.022μF,50V
L1001	QQL29BJ-220Z	COIL	22μH
L1004	QQL071J-680Y	COIL	68μH

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		L1006	QQL29BJ-101Z	COIL	100μH
		L1010	QQL29BJ-4R7Z	COIL	4.7μH
		L1201	QQL29BJ-101Z	COIL,S4500U	100μH
		L1202	QQL29BJ-101Z	COIL,S4500U	100μH
		L1203	QQL29BJ-101Z	COIL,S4500U	100μH
		L1204	QQL071J-330Y	COIL,S4500U	33μH
		L1205	QQL071J-150Y	COIL,S4500U	15μH
		L1206	QQL071J-100Y	COIL,S4500U	10μH
		L1207	QQL071J-8R2Y	COIL,S4500U	8.2μH
		L1401	QQL071J-330Y	COIL,S7500U	33μH
		L1402	QQL29BJ-100Z	COIL,S7500U	10μH
		L1404	QQL071J-8R2Y	COIL,S7500U	8.2μH
		L1405	QQL071J-150Y	COIL,S7500U	15μH
		L1406	QQL071J-6R8Y	COIL,S7500U	6.8μH
		L1407	QQL29BJ-100Z	COIL,S7500U	10μH
		L1408	QQL29BJ-100Z	COIL,S7500U	10μH
		L1409	QQL071J-330Y	COIL,S7500U	33μH
		L1410	QQL29BJ-4R7Z	COIL,S7500U	4.7μH
		LC1201	QQR0657-013Z	NOISE FILTER,S4500U	
		LC1401	QQR0657-013Z	NOISE FILTER,S7500U	
		LC1402	QQR0657-010Z	NOISE FILTER,S7500U	
		BK1	LP40077-001A	BRACKET(BOARD)	
		SD1	LP30431-001B	SHIELD CASE(S-VHS),S7500U	
			LP30405-001B	SHIELD CASE(S-VHS),S4500U	
		SD2	LP30406-001A	SHIELD PLATE(S-VHS)	
		CN1001	QGG2503K2-20	HEADER PIN,(11-30)MAIN,S4500U	
			QGG2503K2-30	HEADER PIN,(1-30)MAIN,S7500U	
		CN1002	QGG2503K2-30	HEADER PIN,(1-30)MAIN	

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MV/CM BOARD ASSEMBLY <23>

REF No.	PART No.	PART NAME, DESCRIPTION	
PW1	LPA10013-02A	MV/CM ADV BOARD ASSY,S7500U	
	LPA10013-01C	MV/CM ADV BOARD ASSY,S4500U	
IC7401	AN3275SB	IC	
Q7401	2SD1819A/QRS/-X	TRANSISTOR	
	or 2SC4081/QRS/-X	TRANSISTOR	
	or 2PC4081/R/-X	TRANSISTOR	
Q7402	2SB1218A/QR/-X	TRANSISTOR	
	or 2PA1576/R/-X	TRANSISTOR	
	or 2SA1576A/QR/-X	TRANSISTOR	
Q7403	UN521E	TRANSISTOR,S7500U	
	or DTC144WU	TRANSISTOR,S7500U	
	or RN1309	TRANSISTOR,S7500U	
Q7404	UN521E	TRANSISTOR,S7500U	
	or RN1309	TRANSISTOR,S7500U	
	or DTC144WU	TRANSISTOR,S7500U	
Q7405	2SB1218A/QR/-X	TRANSISTOR,S7500U	
	or 2PA1576/R/-X	TRANSISTOR,S7500U	
	or 2SA1576A/QR/-X	TRANSISTOR,S7500U	
Q7406	UN511E	TRANSISTOR,S7500U	
	or RN2309	TRANSISTOR,S7500U	
	or DTA144WU	TRANSISTOR,S7500U	
R7404	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
R7405	NRSA02J-823X	MG RESISTOR,S7500U	82kΩ,1/10W
R7406	NRSA02J-123X	MG RESISTOR,S7500U	12kΩ,1/10W
R7408	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R7409	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R7410	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W
R7421	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R7422	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R7424	NRSA02J-472X	MG RESISTOR,S7500U	4.7kΩ,1/10W
R7425	NRSA02J-152X	MG RESISTOR,S7500U	1.5kΩ,1/10W
R7427	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
R7428	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W
R7429	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
R7430	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R7431	NRSA02J-271X	MG RESISTOR	270Ω,1/10W
R7432	NRSA02J-103X	MG RESISTOR,S7500U	10kΩ,1/10W
R7433	NRSA02J-103X	MG RESISTOR,S7500U	10kΩ,1/10W
R7434	NRSA02J-392X	MG RESISTOR,S7500U	3.9kΩ,1/10W
R7435	NRSA02J-153X	MG RESISTOR,S7500U	15kΩ,1/10W
R7436	NRSA02J-331X	MG RESISTOR,S7500U	330Ω,1/10W
R7437	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R7438	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
R7439	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
R7440	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
R7441	NRSA02J-473X	MG RESISTOR,S7500U	47kΩ,1/10W
C7401	QDYB1CM-103Y	CAPACITOR	0.01μF,16V
C7402	QETC1CM-476	E CAPACITOR	47μF,16V
C7403	QFN31HJ-272	F CAPACITOR	0.0027μF,50V
C7404	QETC1HM-104	E CAPACITOR,S7500U	0.1μF,50V
C7406	NCB21HK-222X	CAPACITOR	0.0022μF,50V
C7407	NCB21HK-103X	CAPACITOR	0.01μF,50V
C7408	NCF21EZ-104X	CAPACITOR,S7500U	0.1μF,25V
C7411	NCB21HK-103X	CAPACITOR	0.01μF,50V
C7414	QFV91HJ-104	F CAPACITOR	0.1μF,50V
C7415	QFV91HJ-224	F CAPACITOR	0.22μF,50V
C7416	NCB21HK-103X	CAPACITOR	0.01μF,50V
C7417	NCB21HK-103X	CAPACITOR	0.01μF,50V
C7418	NCB21HK-103X	CAPACITOR,S7500U	0.01μF,50V
C7419	NCB21EK-104X	CAPACITOR	0.1μF,25V
C7420	NDC21HJ-390X	CAPACITOR	39pF,50V
C7421	QETC1HM-105	E CAPACITOR	1μF,50V
C7422	QETC1HM-105	E CAPACITOR,S7500U	1μF,50V
C7424	NCB21HK-102X	CAPACITOR,S7500U	0.001μF,50V
C7425	NCB21HK-102X	CAPACITOR,S4500U	0.001μF,50V
C7426	QEKC1HM-225	E CAPACITOR	2.2μF,50V
C7427	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C7430	NCB21HK-562X	CAPACITOR	0.0056μF,50V
C7431	NCB21HK-473X	CAPACITOR	0.047μF,50V
C7432	NCB21HK-223X	CAPACITOR	0.022μF,50V
L7401	QQL01BK-100Z	COIL	10μH
L7402	QQL231J-470Y	COIL	47μH
FL7401	PELN1137	LOW PASS FILTER	
BK1	LP40077-001A	BRACKET(BOARD)	
CN7402	QGG2502K1-08	HEADER PIN,(1-8)MAIN,S4500U	
	QGG2502K1-10	HEADER PIN,(1-8)MAIN,S7500U	

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SW/DISPLAY BOARD ASSEMBLY <28>

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PW1	LPA10018-10B1	DISPLAY BOARD ASSY,S4500U	
PW1	LPA10039-01B1	DISPLAY BOARD ASSY,S7500U	
IC7001	M35500BFP	IC	
	or M35500AGP	IC	
	or M35500BGP	IC	
IC7002	PNA4652M00XB	IR DETECT UNIT	
	or GP1U281X	IR DETECT UNIT	
D7002	RD9.1ES/B2/-T2	ZENER DIODE	
	or UZ9.1BSB	ZENER DIODE	
	or MTZJ9.1B	ZENER DIODE	
D7004	1N4148M	DIODE,S7500U	
	or 1SS133	DIODE,S7500U	
D7005	1N4148M	DIODE	
	or 1SS133	DIODE	
D7006	1N4148M	DIODE,S7500U	
	or 1SS133	DIODE,S7500U	
D7009	SLR-342VC3F	LE DIODE,S7500U	
D7010	SLR-342MC3F	LE DIODE,S7500U	
	SLR-342VC3F	LE DIODE,S4500U	
D7011	SLR-56DC3F	LE DIODE,S7500U	
D7012	SLR-56DC3F	LE DIODE,S7500U	
R7001	QRE141J-471Y	RESISTOR	470Ω,1/4W
R7002	QRE141J-471Y	RESISTOR	470Ω,1/4W
R7003	QRE141J-471Y	RESISTOR	470Ω,1/4W
R7004	QRE141J-471Y	RESISTOR	470Ω,1/4W
R7005	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7006	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7007	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7008	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7009	QRE141J-153Y	RESISTOR	15kΩ,1/4W
R7010	QRE141J-153Y	RESISTOR,S4500U	15kΩ,1/4W
R7011	QRE141J-153Y	RESISTOR,S4500U	15kΩ,1/4W
R7012	QRE141J-153Y	RESISTOR	15kΩ,1/4W
R7013	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7014	QRE141J-470Y	RESISTOR	47Ω,1/4W
R7015	QRE141J-0R0Y	RESISTOR,S4500U	0Ω,1/4W
R7020	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7021	QRE141J-122Y	RESISTOR	1.2kΩ,1/4W
R7022	QRE141J-182Y	RESISTOR	1.8kΩ,1/4W
R7023	QRE141J-222Y	RESISTOR	2.2kΩ,1/4W
R7024	QRE141J-272Y	RESISTOR	2.7kΩ,1/4W
R7025	QRE141J-472Y	RESISTOR	4.7kΩ,1/4W
R7026	QRE141J-682Y	RESISTOR	6.8kΩ,1/4W
R7027	QRE141J-153Y	RESISTOR	15kΩ,1/4W
R7028	QRE141J-393Y	RESISTOR	39kΩ,1/4W
R7030	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7031	QRE141J-122Y	RESISTOR	1.2kΩ,1/4W
R7032	QRE141J-182Y	RESISTOR	1.8kΩ,1/4W
R7033	QRE141J-222Y	RESISTOR	2.2kΩ,1/4W
R7034	QRE141J-272Y	RESISTOR	2.7kΩ,1/4W
R7035	QRE141J-472Y	RESISTOR	4.7kΩ,1/4W
R7036	QRE141J-682Y	RESISTOR	6.8kΩ,1/4W
R7037	QRE141J-153Y	RESISTOR,S4500U	15kΩ,1/4W
	QRE141J-563Y	RESISTOR,S7500U	56kΩ,1/4W
R7038	QRE141J-393Y	RESISTOR,S4500U	39kΩ,1/4W
R7040	QRE141J-331Y	RESISTOR,S7500U	330Ω,1/4W
R7041	QRE141J-331Y	RESISTOR	330Ω,1/4W
R7042	QRE141J-820Y	RESISTOR	82Ω,1/4W
R7050	QRE141J-393Y	RESISTOR,S4500U	39kΩ,1/4W
R7191	QRE141J-750Y	RESISTOR	75Ω,1/4W
C7001	QDVB1EZ-223Y	CAPACITOR	0.022μF,25V
C7002	QETC1HM-106	E CAPACITOR,S7500U	10μF,50V
	QEKC1HM-106	E CAPACITOR,S4500U	10μF,50V
C7007	QEKC0JM-476	E CAPACITOR,S7500U	47μF,6.3V
	QEKJ1CM-476	E CAPACITOR,S4500U	47μF,16V

REF No.	PART No.	PART NAME, DESCRIPTION	
C7008	QDVB1EZ-223Y	CAPACITOR,S4500U	0.022μF,25V
C7009	QCSB1HJ-150	CAPACITOR	15pF,50V
C7010	QCFB1HZ-104	CAPACITOR	0.1μF,50V
C7011	QETC0JM-227	E CAPACITOR,S7500U	220μF,6.3V
	QEKJ0JM-337	E CAPACITOR,S4500U	330μF,6.3V
C7013	QDYB1CM-103Y	CAPACITOR,S7500U	0.01μF,16V
C7014	QDYB1CM-103Y	CAPACITOR,S7500U	0.01μF,16V
C7019	QDVB1EZ-223Y	CAPACITOR,S7500U	0.022μF,25V
S7001	QSW0456-002Z	TACT SWITCH,POWER	
S7002	QSW0456-002Z	TACT SWITCH,CH+	
S7003	QSW0456-002Z	TACT SWITCH,CH-	
S7004	QSW0456-002Z	TACT SWITCH,REC	
S7005	QSW0456-002Z	TACT SWITCH,PAUSE	
S7006	QSW0456-002Z	TACT SWITCH,PLAY,S7500U	
S7007	QSW0456-002Z	TACT SWITCH,STOP/EJECT,S7500U	
S7008	QSW0456-002Z	TACT SWITCH,TV/VCR,S4500U	
	QSW0456-002Z	TACT SWITCH,FF,S7500U	
S7009	QSW0456-002Z	TACT SWITCH,SP/EP,S4500U	
	QSW0456-002Z	TACT SWITCH,REW,S7500U	
S7010	QSW0456-002Z	TACT SWITCH,MENU	
S7011	QSW0456-002Z	TACT SWITCH,OK	
S7012	QSW0456-002Z	TACT SWITCH,REVIEW,S4500U	
	QSW0456-002Z	TACT SWITCH,INSERT,S7500U	
S7013	QSW0456-002Z	TACT SWITCH,ST BOX	
S7014	QSW0456-002Z	TACT SWITCH,STOP/EJECT,S4500U	
	QSW0456-002Z	TACT SWITCH,TBC,S7500U	
S7015	QSW0456-002Z	TACT SWITCH,PLAY,S4500U	
	QSW0456-002Z	TACT SWITCH,A.DAB,S7500U	
S7016	QSW0456-002Z	TACT SWITCH,REVIEW,S7500U	
OT1	LP30002-052A	SPACER,X2,S4500U	
DI7001	QLF0032-002	FL TUBE,S7500U	
	QLF0031-002	FL TUBE,S4500U	
HD1	LP30140-001A	FDP HOLDER L,DI7001,S4500U	
	PQ34668	FDP HOLDER(L),DI7001,S7500U	
HD2	LP30141-001A	FDP HOLDER R,DI7001,S4500U	
	PQ34669	FDP HOLDER(R),DI7001,S7500U	
HD3	PQM30038-2-2	LED HOLDER,D7009 S7500U	
HD4	PQM30038-2-2	LED HOLDER,D7010 S7500U	
	PQM30038-6	LED HOLDER,D7010,S4500U	
HD5	PQM30038-1-2	LED HOLDER,D7011 S7500U	
HD6	PQM30038-1-2	LED HOLDER,D7011 S7500U	
FW7001	PW30101-60AA442	PARALLEL WIRE,S7500U	
	QUM032-07A4A4	PARA RIBON WIRE,S4500U	
J7191	PEMC1126	PIN JACK,VIDEO IN	
J7192	PEMC0922	PIN JACK(SW),AUDIO(L)IN	
J7193	PEMC0922	PIN JACK(SW),AUDIO(R)IN	
CN7001	QGF1207F1-12	FPC CONNECTOR,(1-12)MAIN,S7500U	
	QGF1208C1-12	FPC CONNECTOR,(1-12)MAIN,S4500U	
CN7191	QGF1207C1-05	FPC CONNECTOR,(3-7)MAIN	

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REC SAFETY BOARD ASSEMBLY <32>

PW2	LPA10018-01B2	REC SAFETY BOARD ASSY,S4500U
	LPA10039-01B2	REC SAFETY BOARD ASSY,S7500U
S7041	QSW0602-002	PUSH SWITCH

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JOG BOARD ASSEMBLY <37>

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION
		PW3	LPA10018-10B3	JOG BOARD ASSY,S4500U
			LPA10039-01B3	JOG BOARD ASSY,S7500U
		UN7091	PEME0976	JOG ASSY
		CN7005	QGF1207F1-07	FPC CONNECTOR,(1-7)MAIN

JVC SERVICE & ENGINEERING COMPANY OF AMERICA
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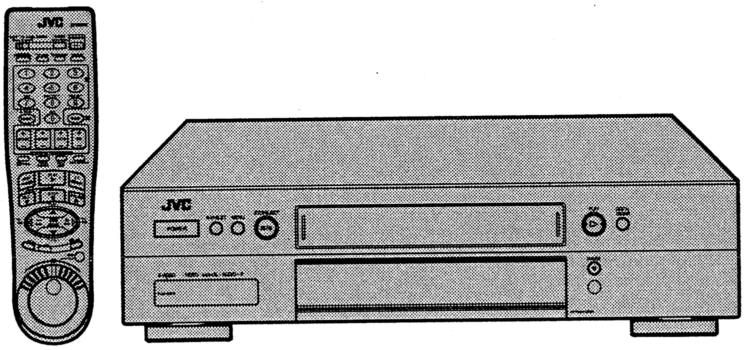
SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-S9500U



Hi-Fi S-VHS

VCR Plus+™ 3 Cable Box Control
Easy Taping.

COMMERCIAL ▸▸ADVANCE®
MOVIE▸▸ADVANCE™
Super VHS ET
TIME SCAN

SPECIFICATIONS

GENERAL

Power requirement	: AC 120 V∿ , 60 Hz
Power consumption	
Power on	: 28 W
Power off	: 3 W
Temperature	
Operating	: 5°C to 40°C (41°F to 104°F)
Storage	: –20°C to 60°C (–4°F to140°F)
Operating position	: Horizontal only
Dimensions (W x H x D)	: 437 x 109 x 340 mm(17-1/4" x 4-5/16" x 13-7/16")
Weight	: 4.8 kg (10.6 lbs)
Format	: S-VHS/VHS NTSC standard
Maximum recording time	
SP	: 210 min. with ST-210 video cassette
EP	: 630 min. with ST-210 video cassette

VIDEO/AUDIO

Signal system	: NTSC-type color signal and EIA monochrome signal, 525 lines/60 fields
Recording/ Playback system	: DA-4 (Double Azimuth) head helical scan system
Signal-to-noise ratio	: 45 dB
Horizontal resolution	: 240 lines (VHS) : 400 lines (S-VHS)
Frequency range	
Normal audio	: 70 Hz to 10,000 Hz
Hi-Fi audio	: 20 Hz to 20,000 Hz
Input/Output	: RCA connectors (IN x 2, OUT x 1) : S-Video connectors (IN x 2, OUT x 1)

TUNER

Tuning system	: Frequency-synthesized tuner
Channel coverage	
VHF	: Channels 2–13
UHF	: Channels 14–69
CATV	: 113 Channels
RF output	: Channel 3 or 4 (switchable; preset to Channel 3 when shipped) 75 ohms, unbalanced

TIMER

Clock reference	: Quartz
Program capacity	: 1-year programmable timer/ 8 programs
Memory backup time	: Approx. 10 min.

ACCESSORIES

Provided accessories	: RF cable (F-type), Infrared remote control unit, "AA" battery x 2, Audio/Video Cable, S-Video cable (4-pin), Controller, Connector cover (for front panel connectors)

Specifications shown are for SP mode unless otherwise specified. E. & O.E. Design and specifications subject to change without notice.

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No. 82669
August 1998

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Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

●Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▨) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

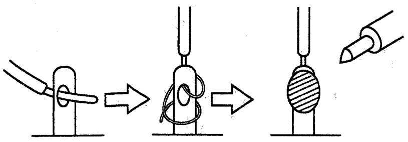


Fig.1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10-15 kg of force in any direction will not loosen it.

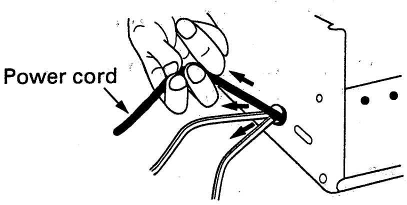


Fig.2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

    1) **Connector part number :** E03830-001
    2) **Required tool :** Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

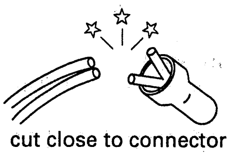


Fig.3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

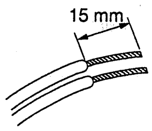


Fig.4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

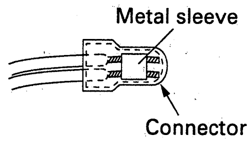


Fig.5

(4) As shown in Fig.6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

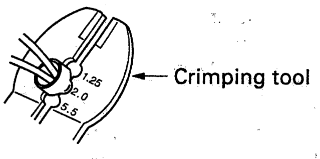


Fig.6

(5) Check the four points noted in Fig.7.

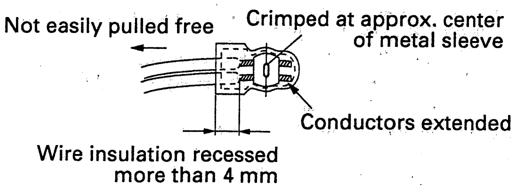

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig.7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

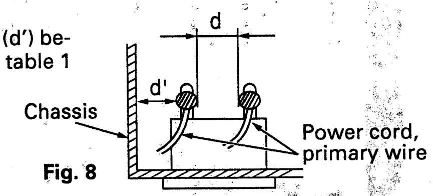


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method : (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

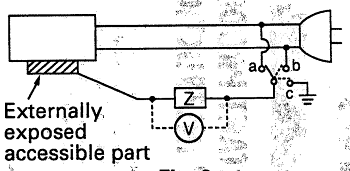


Fig. 9

5. **Grounding (Class I model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

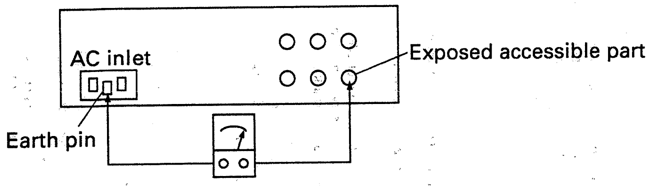


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 miute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	–	AC 1 kV 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ/500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

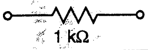
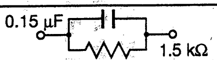
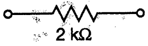
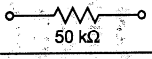
AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	 1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	 0.15 µF, 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	 2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		 50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

INSTRUCTIONS

Dear Customer,
Thank you for purchasing the JVC VHS video cassette recorder. Before use, please read the safety information and precautions contained in the following pages to ensure safe use of your new VCR.

CAUTIONS

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK.
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

CAUTION:
This video cassette recorder should be used with AC 120V∿, 60Hz only.
To prevent electric shocks and fire hazards, DO NOT use any other power source.

CAUTION:
TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

ATTENTION:
POUR ÉVITER LES CHOCS ÉLECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.

Note to CATV system installer:
This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

CAUTION:
Changes or modifications not approved by JVC could void user's authority to operate the equipment.

Failure to heed the following precautions may result in damage to the VCR, remote control or video cassette.

1. **DO NOT place the VCR . . .**
   - ... in an environment prone to extreme temperatures or humidity.
   - ... in direct sunlight.
   - ... in a dusty environment.
   - ... in an environment where strong magnetic fields are generated.
   - ... on a surface that is unstable or subject to vibration.
2. **DO NOT block the VCR's ventilation openings.**
3. **DO NOT place heavy objects on the VCR or remote control.**
4. **DO NOT place anything which might spill on top of the VCR or remote control.**
5. **AVOID violent shocks to the VCR during transport.**

****MOISTURE CONDENSATION**

Moisture in the air will condense on the VCR when you move it from a cold place to a warm place, or under extremely humid conditions—just as water droplets form on the surface of a glass filled with cold liquid. Moisture condensation on the head drum will cause damage to the tape. In conditions where condensation may occur, keep the VCR's power turned on for a few hours to let the moisture dry before inserting a tape.

****ABOUT HEAD CLEANING**

Accumulation of dirt and other particles on the video heads may cause the playback picture to become blurred or interrupted. Be sure to contact your nearest JVC dealer if such troubles occur.

VCR Plus+C^3 and PlusCode are trademarks of Gemstar Development Corporation.
The VCR Plus+ system is manufactured under license from Gemstar Development Corporation.

DSS™ is an official trademark of DIRECTV, Inc., a unit of GM Hughes Electronics. PRIMESTAR is a registered service mark of Primestar Partners, L.P. DISH Network™ is a trademark of Echostar Communications Corporation.

MOVIE ADVANCE™ and COMMERCIAL ADVANCE® are trademarks of SRT, Inc. A Jerry Iggulden invention licensed in association with Arthur D. Little Enterprises, Inc.

- ■ Cassettes marked "S-VHS" and "VHS" can be used with this video cassette recorder. However, S-VHS recordings are possible only with cassettes marked "S-VHS".
  By using S-VHS ET it is possible to record and play back with S-VHS picture quality on VHS cassettes with this VCR.
- ■ As an ENERGY STAR® Partner, JVC has determined that this product or product model meets the ENERGY STAR® guidelines for energy efficiency.

IMPORTANT PRODUCT SAFETY INSTRUCTIONS

Electrical energy can perform many useful functions. But improper use can result in potential electrical shock or fire hazards. This product has been engineered and manufactured to assure your personal safety. In order not to defeat the built-in safeguards, observe the following basic rules for its installation, use and servicing.

ATTENTION:

Follow and obey all warnings and instructions marked on your product and its operating instructions. For your safety, please read all the safety and operating instructions before you operate this product and keep this booklet for future reference.

INSTALLATION

1. Grounding or Polarization

(A) Your product may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature.
If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

(B) Your product may be equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature.
If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.

2. Power Sources

Operate your product only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. If your product is intended to operate from battery power, or other sources, refer to the operating instructions.

3. Overloading

Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.

4. Power Cord Protection

Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

5. Ventilation

Slots and openings in the cabinet are provided for ventilation. To ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered.

- Do not block the openings by placing the product on a bed, sofa, rug or other similar surface.
- Do not place the product in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

6. Wall or Ceiling Mounting

The product should be mounted to a wall or ceiling only as recommended by the manufacturer.

ANTENNA INSTALLATION INSTRUCTIONS

1. Outdoor Antenna Grounding

If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding connectors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

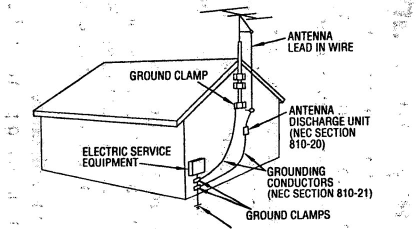
2. Lightning

For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.

3. Power Lines

An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.

EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE, ANSI/NFPA 70


ANTENNA LEAD IN WIRE
GROUND CLAMP
ANTENNA DISCHARGE UNIT (NEC SECTION 810-20)
ELECTRIC SERVICE EQUIPMENT
GROUNDING CONDUCTORS (NEC SECTION 810-21)
GROUND CLAMPS
POWER SERVICE GROUNDING ELECTRODE SYSTEM (NEC ART 250. PART H)

NEC – NATIONAL ELECTRICAL CODE

USE

1. Accessories

To avoid personal injury:

- Do not place this product on an unstable cart, stand, tripod, bracket, or table. It may fall, causing serious injury to a child or adult, and serious damage to the product.
- Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer or sold with the product.
- Use a mounting accessory recommended by the manufacturer and follow the manufacturer's instructions for any mounting of the product.
- Do not try to roll a cart with small casters across thresholds or deep-pile carpets.

2. Product and Cart Combination

A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.

PORTABLE CART WARNING
(Symbol provided by RETAC)

3. Water and Moisture

Do not use this product near water—for example, near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement, or near a swimming pool and the like.

4. Object and Liquid Entry

Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

5. Attachments

Do not use attachments not recommended by the manufacturer of this product as they may cause hazards.

6. Cleaning

Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

7. Heat

The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

SERVICING

1. Servicing

If your product is not operating correctly or exhibits a marked change in performance and you are unable to restore normal operation by following the detailed procedure in its operating instructions, do not attempt to service it yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

2. Damage Requiring Service

Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

a. When the power supply cord or plug is damaged.

b. If liquid has been spilled, or objects have fallen into the product.

c. If the product has been exposed to rain or water.

d. If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.

e. If the product has been dropped or damaged in any way.

f. When the product exhibits a distinct change in performance—this indicates a need for service.

3. Replacement Parts

When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.

4. Safety Check

Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in safe operating condition.

HOW TO USE THIS INSTRUCTION MANUAL

- All major sections and subsections are listed in the Table Of Contents on page 5. Use this when searching for information on a specific procedure or feature.
- The Index on pages 69–72 lists frequently-used terms, and the number of the page on which they are used or explained in the manual. This section also illustrates the controls and connections on the front and rear panel, the front display panel and the remote control.
- The ☞ mark signals a reference to another page for instructions or related information.
- Operation buttons necessary for the various procedures are clearly indicated through the use of illustrations at the beginning of each major section.

BEFORE YOU INSTALL YOUR NEW VCR . . .

. . . please read the sections/literature listed below.

- "Cautions" on page 2
- "Important Products Safety Instructions" on the previous pages

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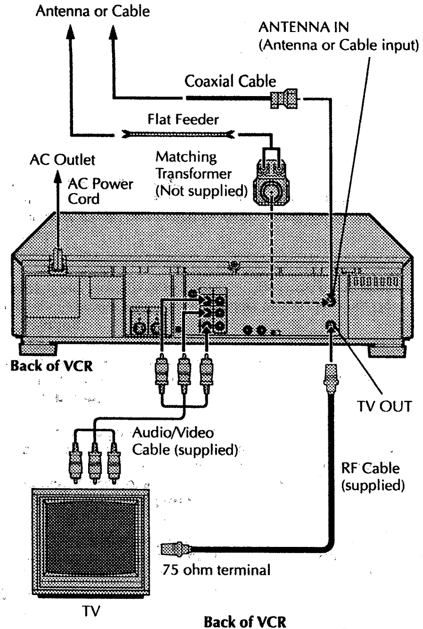
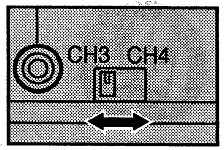
Connections


Antenna or Cable
ANTENNA IN
(Antenna or Cable input)
Coaxial Cable
Flat Feeder
AC Outlet
AC Power Cord
Matching Transformer (Not supplied)
Back of VCR
TV OUT
Audio/Video Cable (supplied)
RF Cable (supplied)
75 ohm terminal
TV

Back of VCR



NOTES:

- *The VCR channel is the channel on the TV which will display the audio and video signals from the VCR. The VCR's CH3-CH4 switch, on the back of the VCR, sets the VCR channel to CH3 or CH4.*
- *The CH3–CH4 switch is preset to the CH3 position. Set to CH4 if CH3 is used for broadcasting in your area and set the channel on the TV to correspond to the VCR's CH3–CH4 switch setting.*
- *If you have connected your VCR to the TV using the RF connector, you may need to press the TV's CH UP and then CH DOWN when switching between the TV and VCR input modes, to maintain good picture quality.*
- *Even if you are using AV cables to connect your VCR to your TV, you must also connect it using the RF cable. This will ensure that you can record one show while watching another (☞ pg. 40).*
- *For full identification of the VCR's rear panel, refer to the Index (REAR VIEW ☞ pg. 71).*

Basic Connections

1 CHECK CONTENTS

Make sure the package contains all of the accessories listed in "SPECIFICATIONS" (☞ pg. 73).

2 SITUATE VCR

Place the VCR on a stable, horizontal surface.

3 CONNECT VCR TO TV

The connection method you use depends on the type of TV you have.

RF Connection

- *To Connect To A TV With NO AV Input Terminals . . .*
  - a– Disconnect the TV antenna from the TV.
  - b– Connect the TV antenna cable to the ANTENNA IN jack on the rear of the VCR.
  - c– Connect the supplied RF cable between the TV OUT jack on the rear of the VCR and the TV's antenna terminal. Set TV on CH3 or CH4 corresponding to the CH3 – CH4 switch setting on the back of the VCR.

AV Connection

- *To Connect To A TV With AV Input Terminals . . .*
  - a– Connect the antenna, VCR and TV as shown in the illustration.
  - b– Connect an Audio/Video Cable between the AUDIO OUT and VIDEO OUT jacks on the rear of the VCR and the AV IN jacks on the TV. Set your TV in video input mode or A/V input mode. Refer to the TV Instruction Manual.

S-VIDEO Connection

- *If you have a TV with S-VIDEO input terminals, see "S-VIDEO Connection" on page 7.*

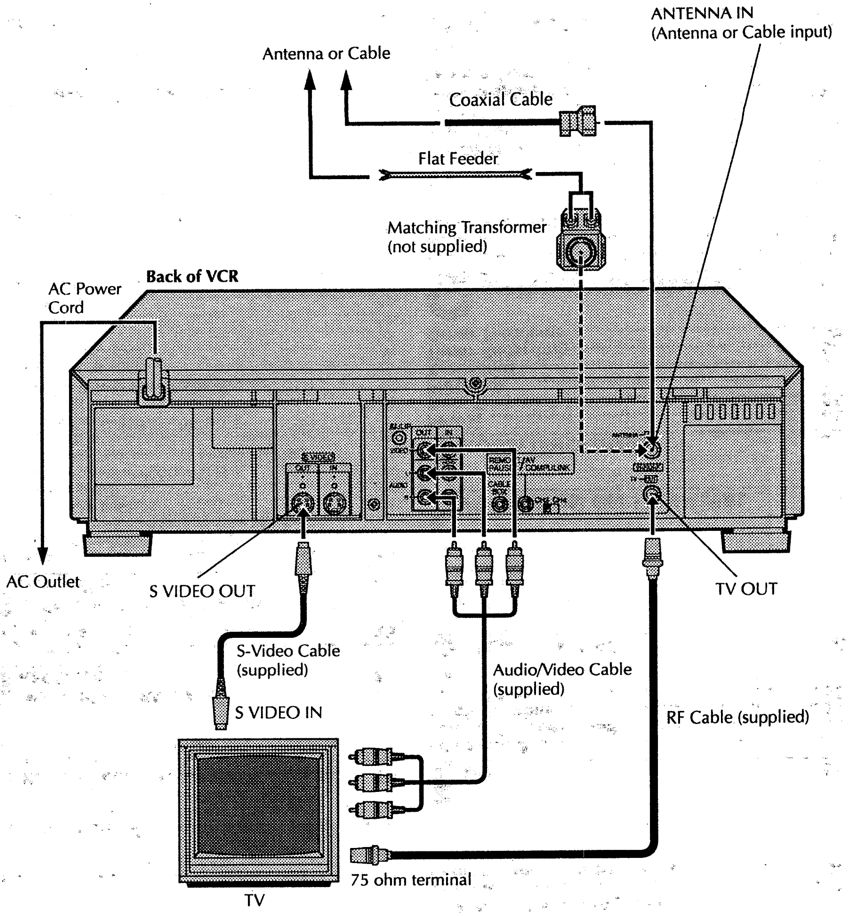
4 CONNECT VCR TO POWER SOURCE

Connect the power plug to an AC outlet.

- The clock and tuner channels will automatically be set when the antenna is connected and when the AC is first connected to the VCR (☞ pg. 8).
  (If "Auto" or "CH" is displayed on the front display panel before the VCR is powered on, the clock and tuner channels are being set automatically. Wait for the time to be displayed on the front display panel before powering on the VCR.)

5 FINAL PREPARATION FOR USE

Power on the VCR and if you have connected the VCR to the TV using the RF connector, select the VCR channel (3 or 4) by setting the switch on the rear of the VCR as shown in the illustration.
You can now perform simple playback (☞ pg. 22) or simple recording (☞ pg. 23).


ANTENNA IN
(Antenna or Cable input)
Antenna or Cable
Coaxial Cable
Flat Feeder
Matching Transformer
(not supplied)
AC Power Cord
Back of VCR
AC Outlet
S VIDEO OUT
TV OUT
S-Video Cable
(supplied)
S VIDEO IN
Audio/Video Cable
(supplied)
RF Cable (supplied)
75 ohm terminal
TV

NOTES:

- *To make the most of the Super VHS picture performance we recommend that you use the supplied S-VIDEO cable to connect your VCR to a TV with an S-VIDEO input connector.*
- *To operate the VCR with your TV using the S-VIDEO connection, set your TV to the AV mode using the TV's remote control.*
  *You can also use the **TV/VCR** button on the VCR's remote control to set your TV to the AV mode. (☞ pg. 60)*

S-VIDEO Connection

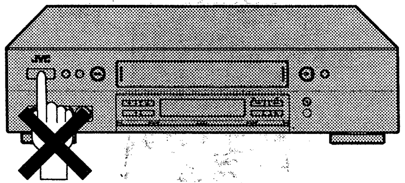
CONNECT VCR TO TV

- a– Connect both the RF cable and the AV cables to the TV as explained in step 3 of "Basic Connections" (☞ pg. 6).
- b– Connect the S-Video cable between the S-VIDEO OUT jack on the rear of the VCR and the S-VIDEO IN jack on the TV.

Plug & Play

Auto Clock Set/Auto Tuner Set

ATTENTION
If you use a cable box, Plug & Play will not function; set the clock and tuner channels manually. (☞ pg.11 – 15)



IMPORTANT
- Don't press any buttons on the VCR or remote while Plug & Play is in progress.
- If you perform Plug & Play successfully, there's no need to perform the Clock (☞ pg. 11) and Tuner (☞ pg. 14) procedures. If, however, you want to add or delete channels, refer to "Add Or Delete A Channel" on page 15.

The Plug & Play function sets the clock and tuner channels automatically when power is first connected to the VCR. The antenna cable must be connected for the Plug & Play function.

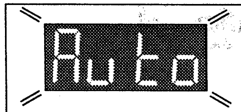
The time and date can be set automatically from clock setting data that is transmitted by one of the regular TV broadcast channels. We call this TV channel the "Host Channel" and it is a PBS channel in your area.

PLUG & PLAY SETUP

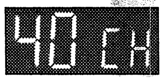
1 **Connect the antenna cable to the VCR (☞ pg. 6). Then connect the VCR's power plug to an AC outlet. Do not power on the VCR. The clock and tuner channels will be set automatically.**

NOTES:

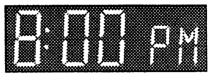
- *Auto clock set is performed first. The auto clock set function scans all the channels received by your VCR to find the Host Channel and then sets the clock. "Auto" blinks on the front display panel during Auto clock set.*
- *Auto channel set is performed next. The auto channel set function scans all the channels that are receivable by your VCR. It then automatically assigns each receivable channels to the* ***CH▲▼*** *(+/–) buttons. It skips non-receivable channels. During auto channel set the channel numbers are displayed as they are scanned and set.*
- *When Plug & Play has been completed successfully the correct time is displayed.*
- *If an incorrect time or "– –:– –" appears on the display panel, see "What To Do If Plug & Play Has Failed" on next page.*



During Initial Auto Clock Set
"Auto" blinks.



During Auto Channel Set
The channel numbers are displayed as they are scanned and set.



Plug & Play Completed
The current time (including AM/PM) is displayed.

* If an incorrect time or "– –:– –" appears on the display panel, see "What To Do If Plug & Play Has Failed" on next page.

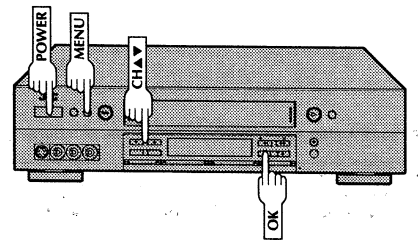
INFORMATION
- If "AUTO CLOCK" is set to "ON" at the Clock Set screen on page 12, the clock will be adjusted automatically by the host channel every hour on the hour (except for 11:00 PM, midnight, 1:00 AM and 2:00 AM) by the incoming PBS channel clock setting data. (This automatic clock adjustment can only be performed when the VCR's power is turned off. The clock will be adjusted on the hour based on the time displayed on the VCR, not on the actual real time.) The default setting of "AUTO CLOCK" is "ON".
- If the memory backup fails, because of a power outage or because the AC was removed from the VCR, Plug & Play will be performed when power is restored to the VCR.

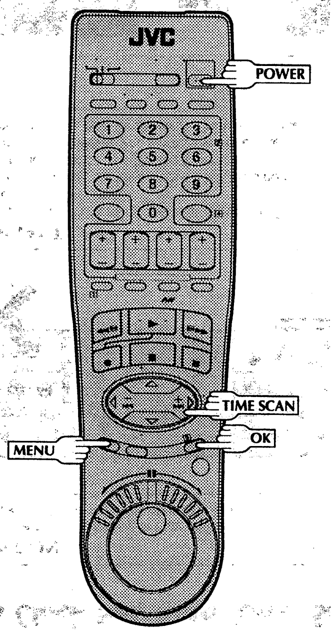
What To Do If Plug & Play Has Failed

- If an incorrect time is displayed on the front display panel, you may be receiving the clock setting data of a PBS channel from an adjacent time zone, or an incorrect PBS channel from a cable TV system. In this case, perform the Semi-Auto (☞ pg. 12) or Manual Clock Set (☞ pg. 13) procedure. Auto channel set has already taken place and it need not be set again.
- If "- -:- -" appears on the display, your antenna cable may not be connected to the VCR or there may not be a Host PBS signal available in your area. Ensure that the antenna cable is connected correctly. Then power on and power off the VCR; the Plug & Play function will be automatically reactivated and "Auto" will be displayed on the VCR's front panel. If Plug & Play is not performed but the antenna cable is connected correctly, perform the Manual Clock Set procedure (☞ pg. 13). Auto channel set has not yet taken place, so please also perform the "Set Receivable Channels" procedure (☞ pg. 14).

Language

Turn on the TV and select the VCR channel 3 or 4 (or AV mode).





This VCR offers you the choice to view on-screen messages in English, Spanish or French (not including messages superimposed on the TV picture). Select the desired language using this procedure. The default setting is "ENGLISH".

1 TURN ON THE VCR

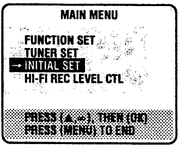
Press **POWER**.

2 ACCESS MAIN MENU SCREEN

Press **MENU**.

3 ACCESS INITIAL SET SCREEN

At the Main Menu screen, move the highlight bar (arrow) to "INITIAL SET" by pressing **CH▲∞** or **TIME SCAN** △▽, then press **OK** or **TIME SCAN** ▷.

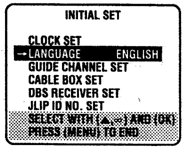

MAIN MENU

FUNCTION SET
TUNER SET
→ INITIAL SET
HI-FI REC LEVEL CTL

PRESS (▲,∞), THEN (OK)
PRESS (MENU) TO END

4 SELECT LANGUAGE

Move the highlight bar (arrow) to "LANGUAGE" by pressing **CH ▲∞** or **TIME SCAN** △▽, then press **OK** or **TIME SCAN** ▷ to select the desired language.


INITIAL SET

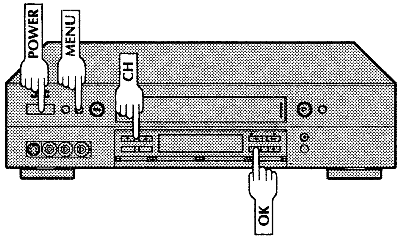
CLOCK SET
→ LANGUAGE ENGLISH
GUIDE CHANNEL SET
CABLE BOX SET
DBS RECEIVER SET
JLIP ID NO. SET
SELECT WITH (▲,∞) AND (OK)
PRESS (MENU) TO END

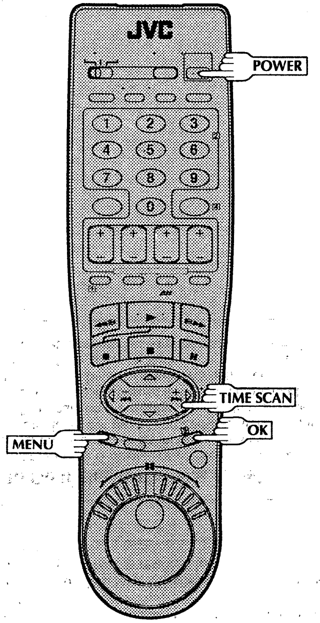
5 RETURN TO NORMAL SCREEN

Press **MENU**.

Clock

Turn on the TV and select the VCR channel 3 or 4 (or AV mode).





Perform clock setting only if the clock has not been set correctly by the Plug & Play function or you use a cable box. Access the Clock Set screen to perform the Semi-Auto or Manual clock setting procedure. Each procedure starts from step **5**.
If you use a cable box, set the clock manually. (☞ pg. 13)

Preparation

1 TURN ON THE VCR

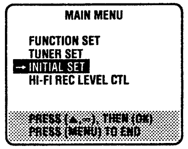
Press **POWER**.

2 ACCESS MAIN MENU SCREEN

Press **MENU**.

3 ACCESS INITIAL SET SCREEN

At the Main Menu screen, move the highlight bar (arrow) to "INITIAL SET" by pressing **CH▲∞** or **TIME SCAN** △▽, then press **OK** or **TIME SCAN** ▷.

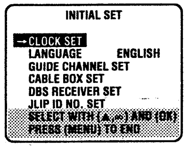

MAIN MENU

FUNCTION SET
TUNER SET
→ INITIAL SET
HI-FI REC LEVEL CTL

PRESS (▲,∞), THEN (OK)
PRESS (MENU) TO END

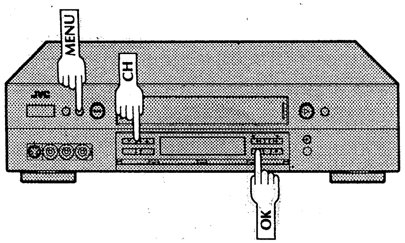
4 ACCESS CLOCK SET SCREEN

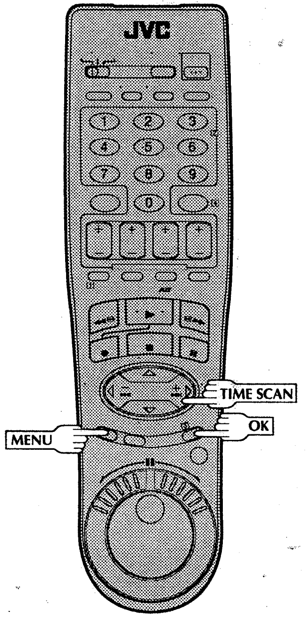
Move the highlight bar (arrow) at the Initial Set screen to "CLOCK SET" by pressing **TIME SCAN** △▽, then press **OK** or **TIME SCAN** ▷.


INITIAL SET

→ CLOCK SET
LANGUAGE ENGLISH
GUIDE CHANNEL SET
CABLE BOX SET
DBS RECEIVER SET
JLIP ID NO. SET
SELECT WITH (▲,∞) AND (OK)
PRESS (MENU) TO END

- "CABLE BOX USERS SET CLOCK MANUALLY" appears on the screen for about 5 seconds, then the Clock Set screen appears.





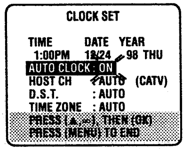
Semi-Auto

You can change the Host Channel/D.S.T. /Time Zone setting manually.

5 SET AUTO CLOCK TO ON

At the Clock Set screen, press **OK** or **TIME SCAN** ▷ repeatedly to move the highlight bar to "AUTO CLOCK" and press **CH** ▲∞ or **TIME SCAN** △▽ to set to "ON".

a– To select the Host Channel — go to step **6**
b– To select the D.S.T. mode — go to step **7**
c– To select the Time Zone — go to step **8**



```
CLOCK SET

TIME        DATE   YEAR
 1:00PM     12/24   98 THU
AUTO CLOCK : ON
HOST CH     : AUTO   (CATV)
D.S.T.      : AUTO
TIME ZONE   : AUTO
PRESS [▲,∞], THEN [OK]
PRESS [MENU] TO END
```

NOTE:

The time that has been set previously will be erased when "AUTO CLOCK", "HOST CH", "D.S.T." or "TIME ZONE" setting is changed.

6 SELECT HOST CHANNEL

You can either select "AUTO" or enter a PBS channel number. Move the highlight bar to "HOST CH" by pressing **OK** or **TIME SCAN** ▷, then press **CH** ▲∞ or **TIME SCAN** △▽ to set to "AUTO" or the desired PBS channel number.

NOTE:

There are some PBS channels that do not transmit clock setting data.

7 SELECT D.S.T. MODE

You have three choices:

a– Select "AUTO" and the adjustment to your VCR's clock will be made according to the incoming signal from the host channel.
b– Select "ON" and the adjustment will be made based on the clock itself.
c– Select "OFF" if Daylight Saving Time does not apply to you.

Move the highlight bar to "D.S.T." by pressing **OK** or **TIME SCAN** ▷, then press **CH** ▲∞ or **TIME SCAN** △▽ to select the desired mode.

****AUTO DAYLIGHT SAVING TIME**

This function enables automatic adjustment of the VCR's clock at the start and end of Daylight Saving Time.
With Auto DST activated, . . .
. . . on the first Sunday of April at 2:00 AM, the clock is adjusted to 3:00 AM.
. . . on the last Sunday of October at 2:00 AM, the clock is adjusted to 1:00 AM.

8 SELECT TIME ZONE

You can select the time zone automatically or manually. Move the highlight bar to "TIME ZONE" by pressing **OK** or **TIME SCAN** ▷, then press **CH** ▲∞ or **TIME SCAN** △▽ to select "AUTO" or the desired time zone.

AUTO	ATLANTIC
HAWAII	EASTERN
ALASKA	CENTRAL
PACIFIC	MOUNTAIN

NOTE:

*If an incorrect time is displayed by the Plug & Play function, you may be receiving the clock setting data of a PBS channel from an adjacent time zone or from an incorrect PBS channel from a cable TV system. If you selected "AUTO" for the host channel in step **6**, be sure to select the correct time zone manually.*

9 RETURN TO NORMAL SCREEN

Press **MENU**.

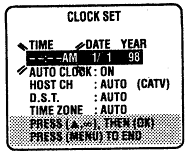
IMPORTANT

Turn the VCR off after performing the Semi-Auto Clock Set procedure. "Auto" will appear on the front display panel when the clock is being set. The current time will appear automatically when the clock is set.

Manual

5 SET TIME

Press **CH** ▲∞ or **TIME SCAN** △▽ until the desired time appears, then press **OK** or **TIME SCAN** ▷.



```
CLOCK SET

TIME        DATE   YEAR
--:--AM      1/ 1   98
AUTO CLOCK : ON
HOST CH     : AUTO   (CATV)
D.S.T.      : AUTO
TIME ZONE   : AUTO
PRESS [▲,∞], THEN [OK]
PRESS [MENU] TO END
```

- Press and hold **CH** ▲∞ or **TIME SCAN** △▽ to change the time by 30-minute increments.
- When the time is entered manually, "AUTO CLOCK" will be automatically set to "OFF", and "HOST CH" and "TIME ZONE" will disappear.

6 SET DATE

Press **CH** ▲∞ or **TIME SCAN** △▽ until the desired date appears, then press **OK** or **TIME SCAN** ▷.

- Press and hold **CH** ▲∞ or **TIME SCAN** △▽ to change the date by 15-day increments.

7 SET YEAR

Press **CH** ▲∞ or **TIME SCAN** △▽ until the desired year appears, then press **OK** or **TIME SCAN** ▷ twice.

8 SELECT D.S.T. MODE

Press **CH** ▲∞ or **TIME SCAN** △▽ to select the desired mode.

a– Set to "ON" so that the adjustment to your VCR's clock will be made on the clock itself.
b– Set to "OFF" if Daylight Saving Time does not apply to you.

9 START CLOCK

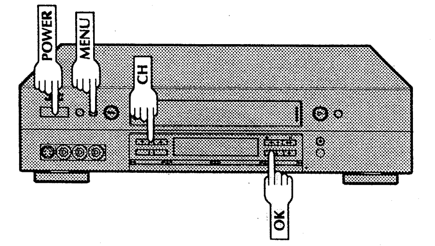
Press **MENU** and normal screen appears.

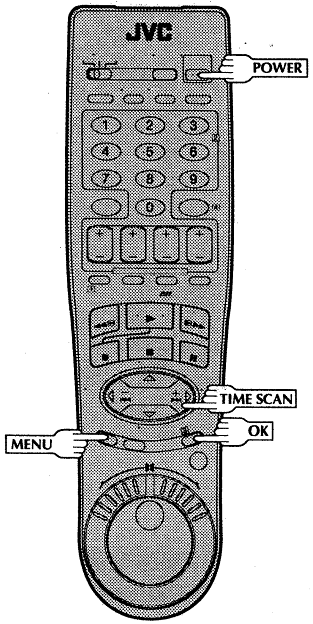
To Make Corrections

Press **OK** or **TIME SCAN** ▷ until the item you want to change blinks, then press **CH** ▲∞ or **TIME SCAN** △▽.

Tuner

Turn on the TV and select the VCR channel 3 or 4 (or AV mode).





INFORMATION
The VCR detects the band (TV or CATV) and selects the correct band automatically during Auto Channel Set.
The selected band will be displayed on the right side of "BAND" on the Tuner Set screen.

Set Receivable Channels

1 TURN ON THE VCR

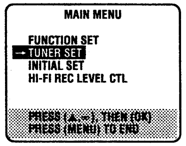
Press **POWER**.

2 ACCESS MAIN MENU SCREEN

Press **MENU**.

3 ACCESS TUNER SET SCREEN

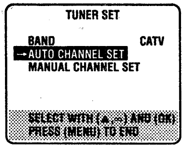
Move the highlight bar (arrow) to "TUNER SET" by pressing **CH▲∞** or **TIME SCAN** △▽, then press **OK** or **TIME SCAN** ▷.



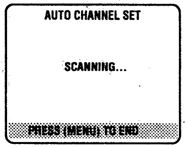
```
MAIN MENU

FUNCTION SET
→TUNER SET
INITIAL SET
HI-FI REC LEVEL CTL

PRESS (▲,∞), THEN (OK)
PRESS (MENU) TO END
```

4 PERFORM AUTO CHANNEL SET

Move the highlight bar (arrow) to "AUTO CHANNEL SET" by pressing **CH▲∞** or **TIME SCAN** △▽, then press **OK** or **TIME SCAN** ▷.



```
TUNER SET

BAND                 CATV
→AUTO CHANNEL SET
MANUAL CHANNEL SET

SELECT WITH (▲,∞) AND (OK)
PRESS (MENU) TO END
```



```
AUTO CHANNEL SET

SCANNING...

PRESS (MENU) TO END
```

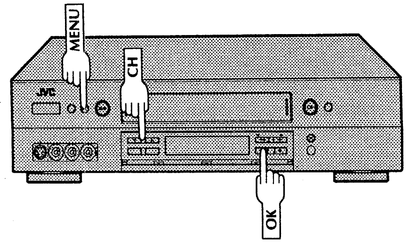
- Receivable channels in your area are automatically assigned to the **CH▲∞** (+/–) buttons, and non-receivable channels are skipped.

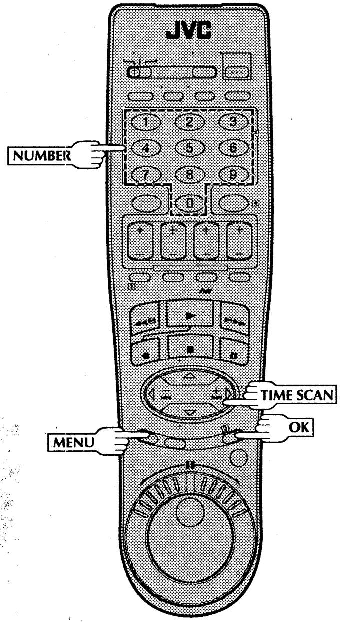
NOTES:

- *At the end of Auto Channel Set, "SCAN COMPLETED" appears on screen.*
- *If the scan was unsuccessful, "SCAN COMPLETED–NO SIGNAL" appears on screen. Check the connections and start again.*

5 RETURN TO NORMAL SCREEN

Press **MENU**.





Add Or Delete A Channel

1 ACCESS MAIN MENU SCREEN

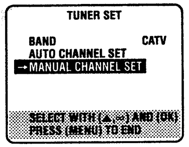
Press **MENU**.

2 ACCESS TUNER SET SCREEN

Move the highlight bar (arrow) to "TUNER SET" by pressing **CH▲∞** or **TIME SCAN** △▽, then press **OK** or **TIME SCAN** ▷.

3 ACCESS MANUAL CHANNEL SET SCREEN

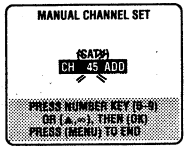
Move the highlight bar (arrow) to "MANUAL CHANNEL SET" by pressing **CH▲∞** or **TIME SCAN** △▽, then press **OK** or **TIME SCAN** ▷.



```
TUNER SET

BAND                 CATV
AUTO CHANNEL SET
→MANUAL CHANNEL SET

SELECT WITH (▲,∞) AND (OK)
PRESS (MENU) TO END
```

4 ADD OR SKIP DESIRED CHANNEL

Input the channel number using the **NUMBER** keys or by pressing **CH▲∞** or **TIME SCAN** △▽, then press **OK** or **TIME SCAN** ▷ to set to "ADD" or "SKIP" as required. Repeat for each channel you want to add or skip.



```
MANUAL CHANNEL SET

(SATV)
CH  45 ADD

PRESS NUMBER KEY (0-9)
OR (▲,∞), THEN (OK)
PRESS (MENU) TO END
```

5 RETURN TO NORMAL SCREEN

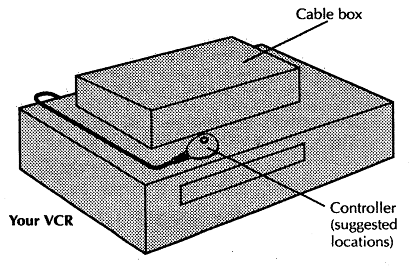
Press **MENU**.

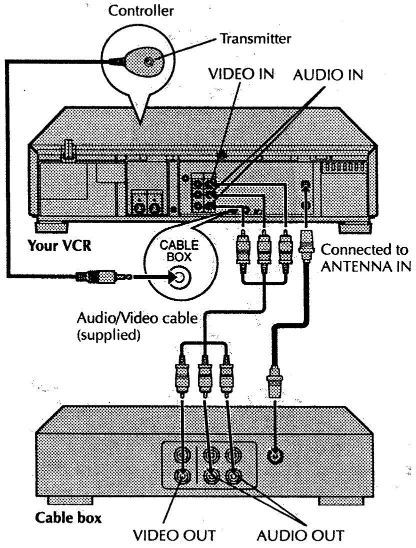
Cable Box Control

Suggested Location
Place the cable box on top of the VCR. Attach the VCR's Controller to the top of the VCR with the Controller's transmitter pointed towards the cable box's remote sensor.

ATTENTION:

The Controller can also control a DBS receiver. If both a cable box and a DBS receiver are used, position the controller so its signal reaches the remote control sensors of both the cable box and DBS receiver.





This procedure is required if you receive your TV channels through a cable box (descrambler). The Controller allows the VCR to automatically switch the cable box channel during timer-recording. The Controller is effective for recording shows that have been programmed using VCR Plus+ (☞ pg. 46) or Express Timer Programming (☞ pg. 50).

Situate And Connect Controller

1 SITUATE CONTROLLER

Place the Controller so that the path between its transmitter and the cable box's remote sensor is unobstructed.

2 ATTACH CONTROLLER

Fasten securely using the supplied adhesive strip.

3 CONNECT CABLE BOX TO VCR

The connection method depends on the type of cable box you have.

If your cable box has AUDIO and VIDEO OUT connectors . . .
. . . connect them to the AUDIO and VIDEO IN connectors on your VCR. Set the VCR to channel "L-1" for the rear AUDIO and VIDEO IN connectors, or channel "F-1" for the front AUDIO and VIDEO IN connectors to use the cable box.
If your cable box doesn't have AUDIO and VIDEO OUT connectors . . .
. . . connect the antenna output connector on the cable box to the ANTENNA IN connector on the rear of your VCR.
Set the VCR tuner to the same channel as the cable box RF output (see page 17 also).

NOTE:
When connecting your cable box refer to its instruction manual.

4 CONNECT CONTROLLER TO VCR

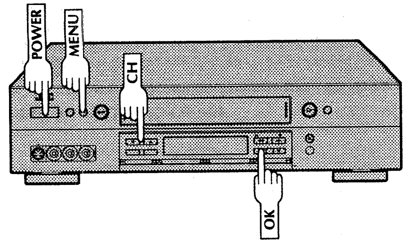
Connect to the CABLE BOX connector on your VCR.

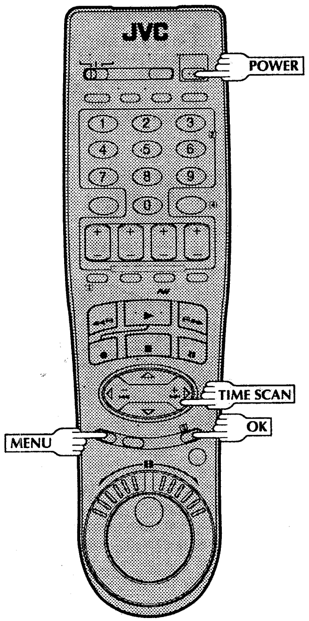
About Your Cable Box
This VCR has two separate methods to control your Cable Box.

- *The VCR's Wireless Remote Control Unit can control your Cable Box.*
  This eliminates the need for a separate Cable Box Remote Control Unit.
- *The VCR's Controller can also control your Cable Box.*
  This allows the VCR to change your Cable Box's channel number during timer recording.

Each method must be set up separately. To set up the VCR's Remote Control unit, refer to page 61. To set up the Controller go to page 17.

Turn on the TV and select the VCR channel 3 or 4 (or AV mode).





Set Cable Box Output Channel & Cable Box Brand

1 TURN ON CABLE BOX

Select a channel other than channel 9 on your cable box.

2 TURN ON THE VCR

Press **POWER**.

3 ACCESS MAIN MENU SCREEN

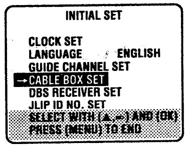
Press **MENU**.

4 ACCESS INITIAL SET SCREEN

Press **CH▲∞** or **TIME SCAN** △▽ to move the highlight bar (arrow) to "INITIAL SET", then press **OK** or **TIME SCAN** ▷.

5 ACCESS CABLE BOX SET SCREEN

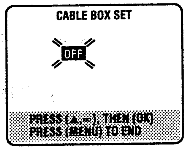
Press **CH▲∞** or **TIME SCAN** △▽ to move the highlight bar (arrow) to "CABLE BOX SET", then press **OK** or **TIME SCAN** ▷.


INITIAL SET

CLOCK SET
LANGUAGE ENGLISH
GUIDE CHANNEL SET
→CABLE BOX SET
DBS RECEIVER SET
JLIP ID NO. SET
SELECT WITH (▲,∞) AND (OK)
PRESS (MENU) TO END

6 SELECT CABLE BOX OUTPUT CHANNEL

Your selection depends on how your cable box is connected to your VCR.

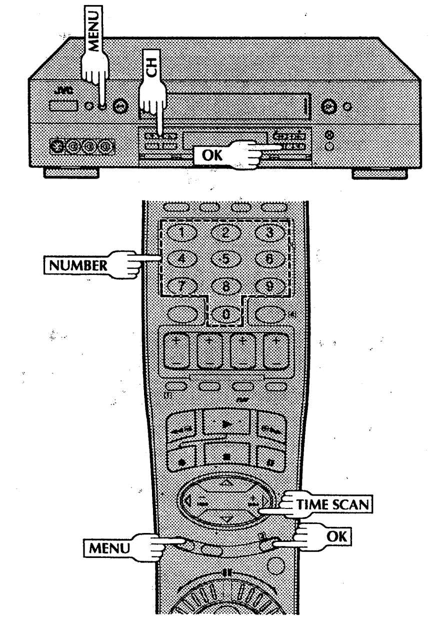

CABLE BOX SET

OFF

PRESS (▲,∞), THEN (OK)
PRESS (MENU) TO END

If your cable box is connected to your VCR using an RF connection . . .
. . . press **CH ▲∞** or **TIME SCAN** △▽ until the channel number representing the cable box's output (CH2 – CH9) appears on the screen.
If your cable box is connected to your VCR's FRONT AUDIO/VIDEO IN connectors . . .
. . . press **CH ▲∞** or **TIME SCAN** △▽ until "ON F-1 (FRONT)" appears on the screen.
If your cable box is connected to your VCR's REAR AUDIO/VIDEO IN connectors . . .
. . . press **CH ▲∞** or **TIME SCAN** △▽ until "ON L-1 (REAR)" appears on the screen.

CONTINUED ON NEXT PAGE



INFORMATION

When the VCR's clock has not been set (with AUTO CLOCK set to ON), if you press **OK** in step **7**, "CABLE BOX USERS SET CLOCK MANUALLY" will be displayed on the screen for about 5 seconds, then the Clock Set screen will appear; perform the manual clock setting procedure on page 13. If you press **MENU** after the clock has been set, the Cable Box Brand Set screen appears.

NOTES:

- *Although the supplied Controller is compatible with many different cable box brands, it is possible that it will not work with your cable box.*
- *If your cable box doesn't respond to any code between 1 and 25, you can't use the Controller to change cable box channels. In this case, make sure to leave the cable box turned on and tuned to the proper channel before the scheduled start of timer recording.*
  Please contact your cable company about the possibility of exchanging your current cable box with one that is compatible with your VCR.
- *The VCR can only change the cable box channel through the Controller during timer recording.*
- *If your cable box is one that can't be operated with a remote control (because it has no remote sensor), you can't use the Controller to change its channels. Make sure to leave the cable box turned on and tuned to the proper channel before the scheduled start of timer recording.*
- *If the VCR's memory backup expires because of a power failure, set the cable box output channel and brand again.*
- *If you are unable to set the Controller, please contact JVC toll free at 1-800-252-5722.*

7

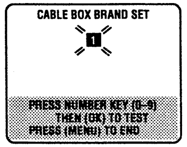
ACCESS CABLE BOX BRAND SET SCREEN

Press **OK**.

8

ENTER CABLE BOX BRAND

Press the appropriate **NUMBER** keys to enter the Cable Box Code from the CABLE BOX BRAND LIST shown below, then press **OK**.



CABLE BOX BRAND SET

1

PRESS NUMBER KEY (0–9)
THEN (OK) TO TEST
PRESS (MENU) TO END

- If the cable box's channel changes to 9, setting is complete. Press **OK** and "CABLE BOX CONTROL IS ON" appears on the screen for about 5 seconds, then it returns to the normal screen.
- If the cable box's channel does not change to 9, press **CH ▲∞** or **TIME SCAN △▽** to move the highlight bar (arrow) to "NO", then press **OK**. By entering another code, repeat step **8** until the cable box's channel changes to 9.
- If the channel does not change after going through all the code numbers listed for your model of cable box, then try all the other numbers between 1 and 25.

CABLE BOX BRAND LIST

BRAND	CODE
ARCHER	1, 5, 17
CABLETENNA	1, 17
CABLEVIEW	15, 16, 17, 21, 25
CITIZEN	15, 16, 17, 21, 25
CURTIS	2
DIAMOND	1, 17
EASTERN	19
GC BRAND	15, 16, 17, 21, 25
GEMINI	15
GENERAL INSTRUMENTS	1, 4, 6, 11, 12, 15
HAMLIN	10, 18, 19, 23
JASCO	15
JERROLD	1, 4, 6, 11, 12, 15
NOVAVISION	2
OAK	7, 20
PANASONIC	13, 14
PULSER	15, 16, 17, 21, 25
RCA	13, 14
REGAL	10, 18, 19, 23
REGENCY	19
REMBRANDT	1, 16, 17
SAMSUNG	5, 16, 24
SCIENTIFIC ATLANTA	2
SIGMA	7, 20
SL MARX	5, 16, 17, 24, 25
SPRUCER	13, 14
STARGATE	5, 15, 16, 17, 21, 24, 25
TELEVIEW	5, 16, 24
TOCOM	1, 4, 16
UNIKA	1, 17
UNIVERSAL	16, 17, 25
VIDEOWAY	3, 9, 22
ZENITH	3, 9, 22

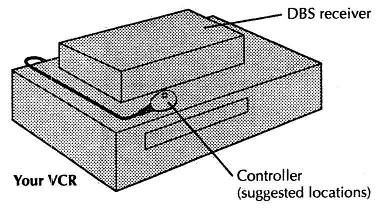
DBS Receiver Control

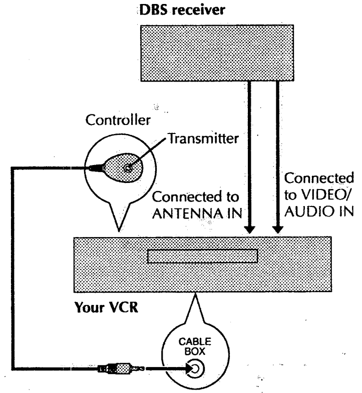
Suggested Location

Place the DBS (Direct Broadcast Satellite) receiver on top of the VCR. Attach the VCR's Controller to the top of the VCR with the Controller's transmitter pointed towards the DBS receiver's remote sensor.

ATTNTION:

The Controller can also control a cable box. If both a DBS receiver and a cable box are used, position the controller so its signal reaches the remote control sensors of both the DBS receiver and cable box.





About Your DBS Receiver

This VCR has two separate methods to control your DBS Receiver.

- *The VCR's Wireless Remote Control Unit can control your DBS Receiver.*
  This eliminates the need for a separate DBS Receiver Remote Control Unit.
- *The VCR's Controller can also control your DBS Receiver.*
  This allows the VCR to change your DBS receiver's channel number during timer recording.

Each method must be set up separately. To set up the VCR's Remote Control unit, refer to page 62. To set up the Controller go to page 20.

The following procedure is required if you receive satellite channels through a DBS (Direct Broadcast Satellite) Receiver. The Controller allows the VCR to automatically switch the DBS Receiver's channels during timer recording.

NOTES:

- *The VCR can automatically change the DBS Receiver channels using the controller when the VCR has been programmed using Express Timer Programming (☞ pg. 50).*
  Because satellite programming does not use PlusCode; the Controller can not change the DBS Receiver channels during VCR Plus+ Timer Recording.
- *If a cable box is also used it is recommended that you connect the DBS receiver to your VCR's A/V inputs and the cable box to your VCR's antenna input.*

Situate And Connect Controller

1

SITUATE CONTROLLER

Place the Controller so that the path between its transmitter and the DBS receiver's remote sensor is unobstructed.

2

ATTACH CONTROLLER

Fasten securely using the supplied adhesive strips.

3

CONNECT DBS RECEIVER TO VCR

The connection method depends on the type of DBS receiver you have.

If your DBS receiver has AUDIO and VIDEO OUT connectors . . .

. . . connect them to the AUDIO and VIDEO IN connectors on your VCR. Set the VCR to channel "L-1" for the rear AUDIO and VIDEO IN connectors, or channel "F-1" for the front AUDIO and VIDEO IN connectors to use the DBS receiver.

If your DBS receiver doesn't have AUDIO and VIDEO OUT connectors . . .

. . . connect the antenna output connector on the DBS receiver to the ANTENNA IN connector on the rear of your VCR.

Set the VCR's tuner to the same channel as the DBS receiver's RF output. (See page 20 also.)

NOTE:

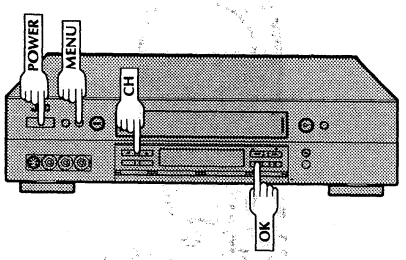
When connecting your DBS receiver refer to its instruction manual.

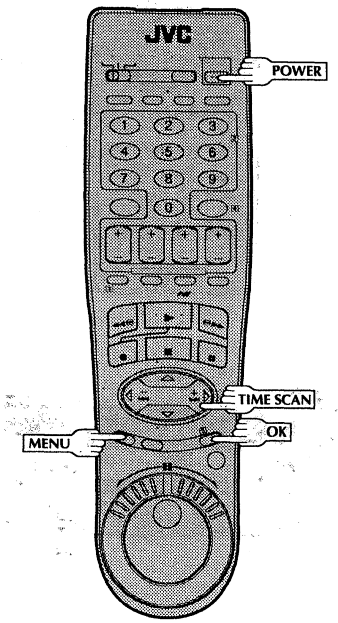
4

CONNECT CONTROLLER TO VCR

Connect to the CABLE BOX connector on your VCR.

Turn on the TV and select the VCR channel 3 or 4 (or AV mode).





Set DBS Receiver Output Channel & DBS Receiver Brand

1 TURN ON DBS RECEIVER

Select a channel other than channel 55, 100 or 205 on your DBS receiver.

2 TURN ON THE VCR

Press **POWER**.

- Set the VCR to the channel (3 or 4 or F-1 or L-1) on which the signals from the DBS receiver are received.

3 ACCESS MAIN MENU SCREEN

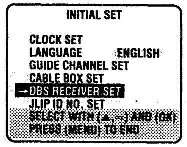
Press **MENU**.

4 ACCESS INITIAL SET SCREEN

Press **CH▲∞** or **TIME SCAN △▽** to move the highlight bar (arrow) to "INITIAL SET", then press **OK** or **TIME SCAN ▷**.

5 ACCESS DBS RECEIVER SET SCREEN

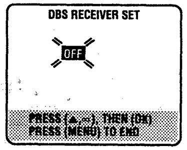
Press **CH▲∞** or **TIME SCAN △▽** to move the highlight bar (arrow) to "DBS RECEIVER SET", then press **OK** or **TIME SCAN ▷**.


INITIAL SET

CLOCK SET
LANGUAGE ENGLISH
GUIDE CHANNEL SET
CABLE BOX SET
→DBS RECEIVER SET
JLIP ID NO. SET
SELECT WITH (▲,∞) AND (OK)
PRESS (MENU) TO END

6 SELECT DBS RECEIVER OUTPUT CHANNEL

Your selection depends on how your DBS receiver is connected to your VCR.


DBS RECEIVER SET

OFF

PRESS (▲,∞), THEN (OK)
PRESS (MENU) TO END

If your DBS receiver is connected to your VCR using an RF connection . . .

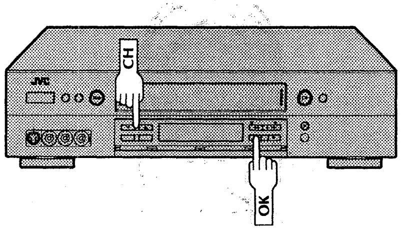
. . . press **CH ▲∞** or **TIME SCAN △▽** until the channel number representing the DBS receiver's output (CH3 – CH4) appears on the screen.

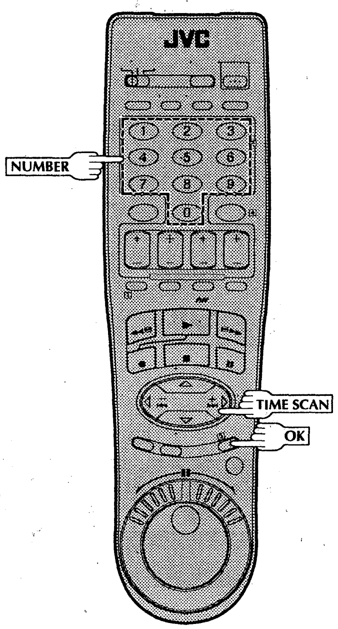
If your DBS receiver is connected to your VCR's FRONT AUDIO/VIDEO IN connectors . . .

. . . press **CH ▲∞** or **TIME SCAN △▽** until "ON F-1 (FRONT)" appears on the screen.

If your DBS receiver is connected to your VCR's REAR AUDIO/VIDEO IN connectors . . .

. . . press **CH ▲∞** or **TIME SCAN △▽** until "ON L-1 (REAR)" appears on the screen.



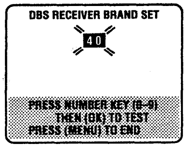


7 ACCESS DBS RECEIVER BRAND SET SCREEN

Press **OK**.

8 SET DBS RECEIVER BRAND

Press the appropriate **NUMBER** keys to enter the DBS Receiver Code from the following list, then press **OK**.


DBS RECEIVER BRAND SET

40

PRESS NUMBER KEY (0–9)
THEN (OK) TO TEST
PRESS (MENU) TO END

BRAND	CODE
JVC (DISH Network)	51
ECHOSTAR (DISH Network)	51
PRIMESTAR	50
SONY (DSS)	41
RCA (DSS)	40

- After **OK** is pressed, the program currently received through the DBS receiver will appear for about 10 seconds.
- If the DBS receiver's channel changes to the channel listed below for your brand of DBS receiver, setting is complete. Press **OK** and "DBS RECEIVER CONTROL IS ON" appears on the screen for about 5 seconds, then it returns to the normal screen.

JVC → 100
ECHOSTAR → 100
PRIMESTAR → 55
SONY → 205
RCA → 205

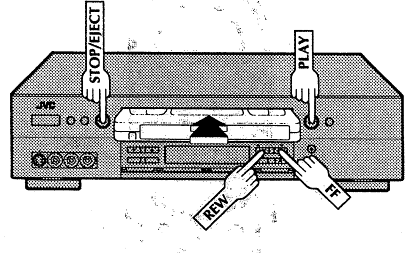
- If the DBS receiver's channel does not change as shown above, press **CH ▲∞** or **TIME SCAN △▽** to move the highlight bar (arrow) to "NO", then press **OK**. Re-enter the correct code.

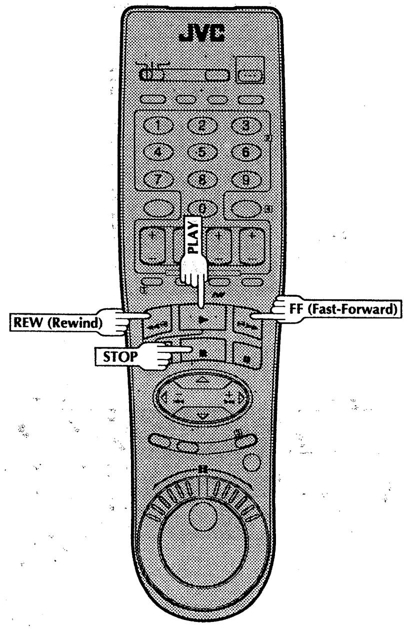
NOTES:

- *It is possible that the Controller will not work with all types of DBS receiver.*
- *If your DBS receiver doesn't respond to the code, you can't use the Controller to change satellite channels. In this case, make sure to leave the DBS receiver turned on and tuned to the proper channel before the scheduled start of timer recording.*
- *The VCR can only change the satellite channel through the Controller during timer recording.*
- *If your DBS receiver is one that can't be operated with a remote control (because it has no remote sensor), you can't use the Controller to change its channels. Make sure to leave the DBS receiver turned on and tuned to the proper channel before the scheduled start of timer recording.*
- *If you are unable to set the Controller, please contact JVC toll free at 1-800-252-5722.*

Simple Playback

Turn on the TV and select the VCR channel 3 or 4 (or AV mode).





1 LOAD A CASSETTE

Make sure the window side is up, the rear label side is facing you and the arrow on the front of the cassette is pointing towards the VCR. Don't apply too much pressure when inserting.

- The VCR's power comes on automatically.
- The counter is automatically reset to "0:00:00".
- If the cassette's record safety tab has been removed, playback begins automatically.

2 FIND PROGRAM START POINT

If the tape is advanced past the start point, press **REW**. To go forward, press **FF**.

3 START PLAYBACK

Press **PLAY**. "VIDEO CALIBRATION" appears on the screen (when VIDEO CALIBRATION is set to "ON" ☞ pg. 36).

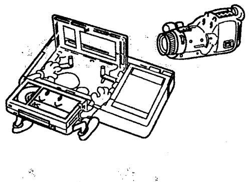
4 STOP PLAYBACK

Press **STOP** or **STOP/EJECT**. Then press **STOP/EJECT** to remove the cassette.

Usable cassettes

Full-Size VHS
T-30 (ST-30**)
T-60 (ST-60**)
T-90
T-120 (ST-120**)
T-160 (ST-160**)
ST-210**

Compact VHS*
TC-20 (ST-C20**)
TC-30 (ST-C30**)
TC-40 (ST-C40**)



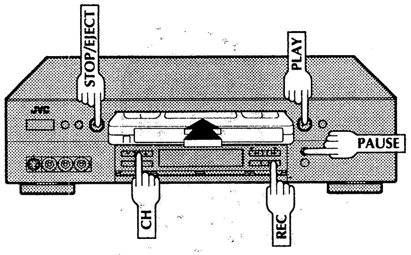
* Compact VHS camcorder recordings can be played on this video recorder. Simply place the recorded cassette into a VHS Cassette Adapter and it can be used just like any full-sized VHS cassette.

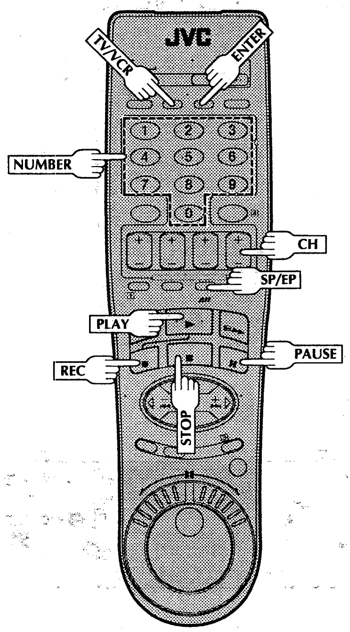
** This VCR can record on regular VHS and Super VHS cassettes. While only VHS signals can be recorded on regular VHS cassettes*, both VHS and Super VHS signals can be recorded and played back using Super VHS cassettes.

* *By using S-VHS ET it is possible to record and play back with S-VHS picture quality on VHS cassettes with this VCR.*

Simple Recording

Turn on the TV and select the VCR channel 3 or 4 (or AV mode).





1 LOAD A CASSETTE

Make sure the record safety tab is intact. If not, cover the hole with adhesive tape before inserting the cassette.

2 SELECT RECORDING CHANNEL

Press **CH▲∞** (+/–). Or press the appropriate **NUMBER** keys, then press **ENTER**. (The channel changes after a few seconds whether you press **ENTER** or not.)

- If you use the RF connection, by pressing the **TV/VCR** button, select VCR mode to view the program to be recorded.

3 SET TAPE SPEED

Press **SP/EP** to set the recording speed.

4 START RECORDING

Press and hold **REC** and press **PLAY** on the remote control, or press **REC** on the VCR's front panel.

Video Calibration takes place at the beginning of both the first SP and the first EP recording after inserting the cassette (when Video Calibration is set to "ON", ☞ pg. 36).

5 PAUSE/RESUME RECORDING

Press **PAUSE**. Press **PLAY** to resume recording.

- During record pause, you can change the recording channel by using the **CH▲∞** (+/–) buttons or **NUMBER** keys.

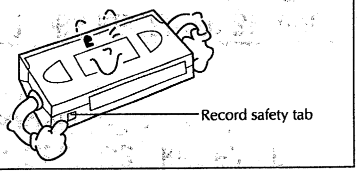
Video Calibration will not take place if the tape speed is changed while in record pause mode.

6 STOP RECORDING

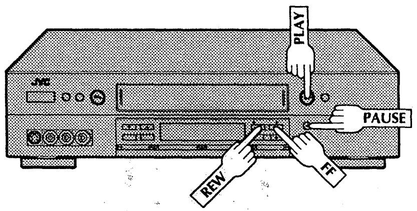
Press **STOP** or **STOP/EJECT**. Then press **STOP/EJECT** to remove the cassette.

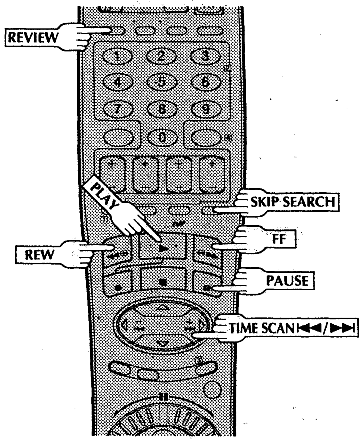
Accidental erasure prevention

- To prevent accidental recording on a recorded cassette, remove its record safety tab.
  To record on it later, cover the hole with adhesive tape.



Playback Features





High-Speed Search

1 ACTIVATE HIGH-SPEED SEARCH

During playback or still, press **FF** for forward high-speed search, or **REW** for reverse high-speed search.

- The search speed is 7 times normal playback speed with SP recordings, and 21 times normal with EP recordings.
- TimeScan will be automatically engaged during high-speed search with an SP-recorded tape.
- If the tape speed changes from SP to EP during high-speed search the TimeScan mode will change to EP search mode.
- Press **TIME SCAN** for the opposite direction during high-speed search of an EP-recorded tape to change to 7x TimeScan search. (☞ pg. 38)

To resume normal playback, press **PLAY**.

NOTE:

*For short searches, during playback or still, press and hold **FF** or **REW** for over 2 seconds. When released, normal playback resumes.*

Still Picture/Frame-By-Frame Playback

1 PAUSE DURING PLAYBACK

Press **PAUSE**.

- During still picture, the normal (mono) sound from the previous 3 seconds (approx.) will be played back repeatedly (provided there was at least 6 seconds of normal playback prior to engaging the still picture mode).
- "TIMESCAN AUDIO" must be set to "ON", or the sound will not be heard (☞ pg. 39).

2 ACTIVATE FRAME-BY-FRAME PLAYBACK

Press **PAUSE** repeatedly to advance one frame at a time.

OR

Press **TIME SCAN ⏭** repeatedly for forward frame-by-frame playback or **TIME SCAN ⏮** repeatedly for reverse frame-by-frame playback.

To resume normal playback, press **PLAY**.

Slow Motion (Pro-Slow*)/ Reverse Slow Motion/Reverse Motion Playback

* Smooth slow motion delivering an uninterrupted moving image without distortion.

1 ACTIVATE SLOW-MOTION PLAYBACK

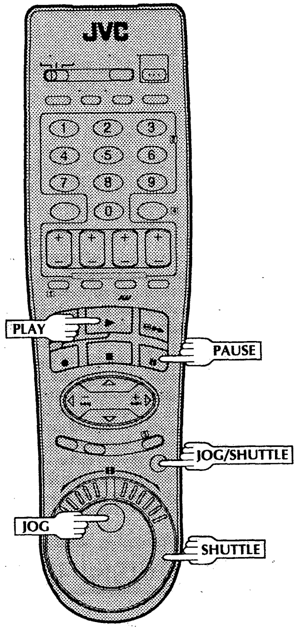
For hands-free slow-motion, press **TIME SCAN ⏮** during playback to decrease speed in the forward direction. Continue to press **TIME SCAN ⏮** to select the reverse slow motion, reverse play and reverse search modes.

OR

During still picture, press and hold **TIME SCAN ⏭** for forward slow motion, or press and hold **TIME SCAN ⏮** for reverse slow motion. Release to return to still picture.

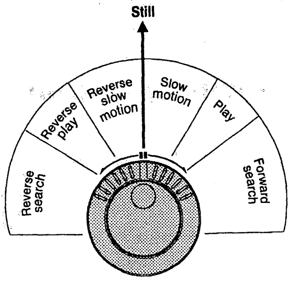
To resume normal playback, press **PLAY**.

Refer to the chart on page 39 for the Play, Slow Motion and Search speeds that are selected using the **TIME SCAN** buttons.



You can also use the remote control's **JOG** dial/**SHUTTLE** ring for the operations described on this page. First press the **JOG/SHUTTLE** button on the remote control so that the button lights up before use. Refer to the **SHUTTLE** ring illustration below as you read the procedures.

NOTE: The operations by the **JOG** dial/**SHUTTLE** ring do not include TimeScan.



Shuttle Ring Modes

Forward search	: 3 steps
Normal playback	
Slow motion	: 2 steps
Reverse slow motion	: 2 steps
Reverse playback	
Reverse search	: 3 steps

High-Speed Search (JOG/SHUTTLE)

1 ACTIVATE HIGH-SPEED SEARCH

During playback or still, turn the **SHUTTLE** ring all the way to the right for forward high-speed search, or to the left for reverse high-speed search. By releasing **SHUTTLE** still picture playback is selected.

- For forward high-speed search, turn the **SHUTTLE** ring all the way to the right and release it within 1 second.
- For reverse high-speed search, turn the **SHUTTLE** ring all the way to the left and release it within 1 second.

To resume normal playback, press **PLAY**.

Variable-Speed Search/ Reverse Motion Playback (JOG/SHUTTLE)

1 ACTIVATE VARIABLE-SPEED SEARCH

During playback or still, turn the **SHUTTLE** ring to the right for forward variable-speed search, or to the left for reverse variable-speed search.

To resume normal playback, press **PLAY**.

Still Picture/Frame-By-Frame Playback (JOG/SHUTTLE)

1 PAUSE DURING PLAYBACK

Press **PAUSE**.

2 ACTIVATE FRAME-BY-FRAME PLAYBACK

Turn the **JOG** dial to the right for forward frame-by-frame playback, or to the left for reverse frame-by-frame playback.

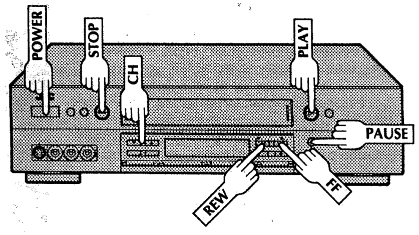
To resume normal playback, press **PLAY**.

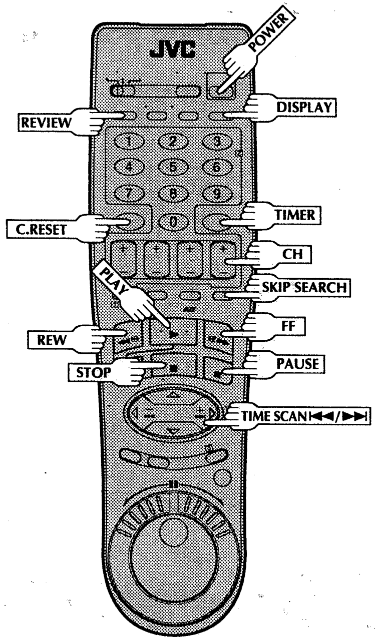
Slow Motion/Reverse Slow Motion (JOG/SHUTTLE)

1 ACTIVATE SLOW-MOTION PLAYBACK

During playback or still picture, turn the **SHUTTLE** ring to the right for forward slow motion, or to the left for reverse slow motion.

To resume normal playback, press **PLAY**.





Manual Tracking

Once playback begins, the VCR's automatic tracking function is engaged. If tracking noise appears in the picture, you can override this and make the adjustment manually.

1

ENGAGE MANUAL TRACKING MODE

During playback, press the **CH▲** and **∞** buttons on the VCR's front panel simultaneously to cancel the automatic tracking mode and enable manual tracking adjust.

2

ADJUST MANUAL TRACKING

Press **CH ▲** (+) or ∞ (–) on the VCR's front panel or remote. Press briefly for fine adjust, or press and hold for coarse adjust. Watch the screen and continue adjusting until optimum picture and sound quality are achieved.

3

RE-ENGAGE AUTOMATIC TRACKING

Press the **CH▲** and **∞** buttons on the VCR's front panel simultaneously.

- When automatic tracking is re-engaged, Video Calibration is automatically activated.

NOTES:

- *To obtain a noiseless still picture it may be necessary to adjust tracking in slow playback and then engage Pause.*
- *Manual tracking is possible during hands-free slow-motion. During hands-free slow-motion playback, simply press **CH ▲** (+) or ∞ (–) on the VCR's front panel or remote to adjust tracking.*

Skip Search

1

SKIP OVER UNWANTED SECTIONS

Press **SKIP SEARCH** 1 to 4 times during playback, with "CA PLAYBACK" set to "OFF" (☞ pg. 33). Each press initiates a 30-second period of fast-motion playback. Normal playback resumes automatically.

NOTES:

- *To return to normal playback during a Skip Search, press **PLAY**.*
- *When **SKIP SEARCH** is pressed during playback of a pre-recorded tape or a tape with the safety tab removed, the Skip Menu is displayed (☞ pag. 31). When this menu is displayed, select "SKIP SEARCH" to select the skip search function.*

Index Search

Index codes are placed on the tape at the start of each recording. You can find and automatically play back from the start of any recording using the Index Search function.

1

START SEARCH

While the tape is stopped, press **TIME SCAN I◀◀** or **▶▶I**.

2

ACCESS DISTANT CODE

To access a recording 2–9 index codes away, press **TIME SCAN I◀◀** or **▶▶I** repeatedly until the correct number is displayed on screen (only if "SUPERIMPOSE" is set to "ON" (☞ pg. 29). Playback begins automatically when the desired recording is located.

- If necessary press **REW** or **FF** when play starts to search visually to find the very beginning of the desired program.

NOTE:

An index code is not placed on the tape when recording is paused and then resumed.

Instant ReView

At the press of a button, you can power up your VCR, rewind the tape and begin viewing the most recently recorded or timer-recorded program.

1

ACTIVATE INSTANT REVIEW

After ensuring that the Timer mode is disengaged, press **REVIEW**.

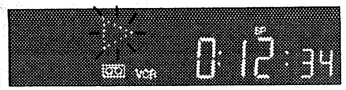
- The power comes on and the VCR rewinds to the index code indicating the start of the last timer-recorded program, then begins playback automatically.
- You can access a program 2–9 index codes away from the current position on the tape. If, for example, you have 5 programs recorded and you want to watch the third one, press **REVIEW** three times.
- If necessary press **REW** or **FF** when play starts to search visually to find the very beginning of the desired program.
- If the tape is already rewound when **REVIEW** is pressed, it will play the tape from the beginning. It will not fast forward to an index code.
- The Instant Review function will also operate if the VCR's power is on.

Repeat Playback

1

START REPEAT

Press and hold **PLAY** (until "▷" blinks on the front display panel) during playback, then release.



- The entire tape is played back 50 times.

2

STOP REPEAT

To stop, press **STOP** at any time.

NOTE:

*Pressing **PLAY**, **REW**, **FF**, **PAUSE** or **TIME SCAN I◀◀** or **▶▶I** also stops Repeat Playback.*

Counter Reset

1

RESET COUNTER TO ZERO

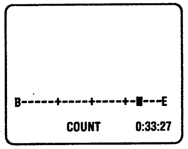
Press **C.RESET**.

NOTE:

*By pressing the **DISPLAY** button, you can change the display to show the counter reading, channel number or clock time. (Channel number is not displayed during playback.)*

Tape Position Indicator

The Tape position indicator appears on screen when, from the stop mode, you press **FF**, **REW**, or perform an Index Search or Instant ReView. The position of "■" in relation to "B" (Beginning) or "E" (End) shows you where you are on the tape.



NOTES:

- *"SUPERIMPOSE" must be set to "ON", or the indicator will not appear (☞ pg. 29).*
- *It may take a few seconds for the Tape Position Indicator to be displayed.*

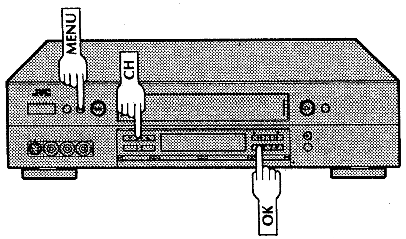
Next-Function Memory

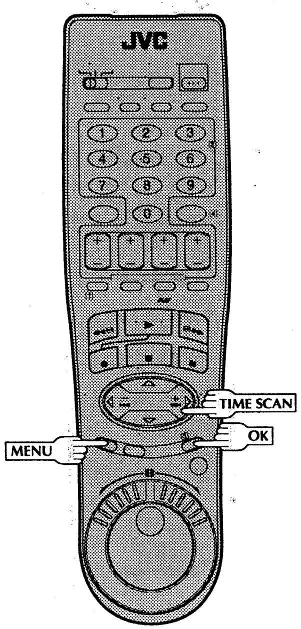
The Next Function Memory "tells" the VCR what to do after rewinding. Before continuing, ensure that the VCR is in stop mode.

a– For Automatic Start Of Playback After Tape Rewind . . .
. . . press **REW**, then press **PLAY** within 2 seconds.
b– For Automatic Power Off After Tape Rewind . . .
. . . press **REW**, then press **POWER** within 2 seconds.
c– For Automatic Timer Standby After Tape Rewind . . .
. . . press **REW**, then press **TIMER** within 2 seconds.

NOTE:

It is not possible to select the Automatic Timer functions if the cassette's record safety tab is removed.





Video Stabilizer

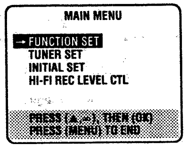
By activating the Video Stabilizer you can correct vertical vibrations in the picture when playing back unstable EP recordings that were made on another VCR. When this function is set to "ON", vertical vibration will be automatically corrected.
*The default setting is "OFF".

1 ACCESS MAIN MENU SCREEN

Press **MENU**.

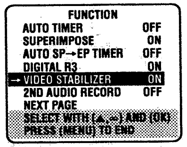
2 ACCESS FUNCTION SET SCREEN

Move the highlight bar (arrow) to "FUNCTION SET" by pressing **CH▲∞** or **TIME SCAN △▽**, then press **OK** or **TIME SCAN ▷**.


MAIN MENU
→ FUNCTION SET
TUNER SET
INITIAL SET
HI-FI REC LEVEL CTL
PRESS (▲,∞), THEN (OK)
PRESS (MENU) TO END

3 ACTIVATE VIDEO STABILIZER

Move the highlight bar (arrow) to "VIDEO STABILIZER" by pressing **CH ▲∞** or **TIME SCAN △▽**, then press **OK** or **TIME SCAN ▷** to set to "ON".

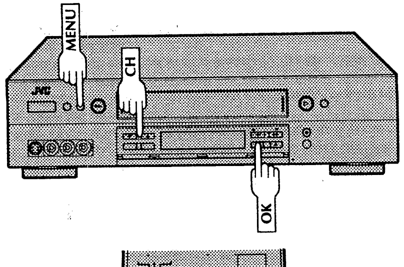

FUNCTION
AUTO TIMER OFF
SUPERIMPOSE ON
AUTO SP→EP TIMER OFF
DIGITAL R3 ON
→ VIDEO STABILIZER ON
2ND AUDIO RECORD OFF
NEXT PAGE
SELECT WITH (▲,∞) AND (OK)
PRESS (MENU) TO END

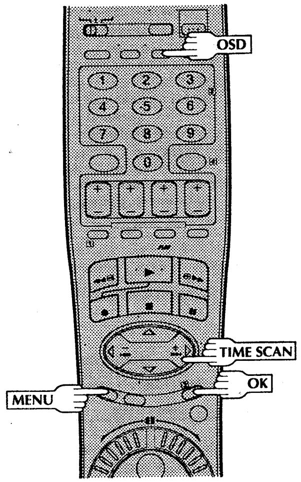
4 RETURN TO NORMAL SCREEN

Press **MENU**.

NOTES:

- *Regardless of the setting, this function has no effect with SP recordings, during recording and during special-effects playback.*
- *When you finish viewing the tape, be sure to set it back to "OFF".*





To recall an indication

1. Press **OSD**.
   - All indications corresponding to the current status are displayed for 5 seconds. After that, the counter information and RECORD/PAUSE if in the Record Pause mode, are left displayed on the screen.
2. Press **OSD** again to clear the display.

Superimpose

This function, switchable between ON and OFF, determines whether or not operational indicators will appear on screen.

1 ACCESS MAIN MENU SCREEN

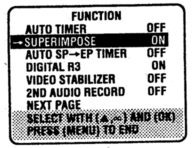
Press **MENU**.

2 ACCESS FUNCTION SET SCREEN

Move the highlight bar (arrow) to "FUNCTION SET" by pressing **CH▲∞** or **TIME SCAN △▽**, then press **OK** or **TIME SCAN ▷**.

3 SELECT SUPERIMPOSE SET MODE

Move the highlight bar (arrow) to "SUPERIMPOSE" by pressing **CH▲∞** or **TIME SCAN △▽**, then press **OK** or **TIME SCAN ▷** to select the desired mode:


FUNCTION
AUTO TIMER OFF
→ SUPERIMPOSE ON
AUTO SP→EP TIMER OFF
DIGITAL R3 ON
VIDEO STABILIZER OFF
2ND AUDIO RECORD OFF
NEXT PAGE
SELECT WITH (▲,∞) AND (OK)
PRESS (MENU) TO END

a– Select "ON" if you want the superimposed operational indications on the TV screen.
b– Select "OFF" if you do not want the superimposed operational indications on the screen.

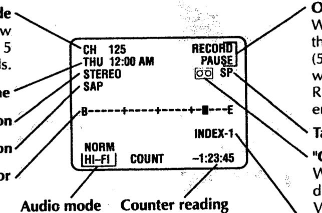
4 RETURN TO NORMAL SCREEN

Press **MENU**.

NOTES:

- *If you engage the Record Pause mode, RECORD/PAUSE is displayed regardless of the Superimpose mode setting.*
- *If you select a channel on which no signal is received, the channel number is displayed regardless of the Superimpose mode setting.*

The superimposed indication on the TV screen tells you what the VCR is doing.



Tuned-in channel or AUX(iliary) mode
When the channel is changed, the new channel is displayed on the screen for 5 seconds.

Clock time

Stereo program indication

Second Audio Program indication

Tape position indicator

Audio mode indications

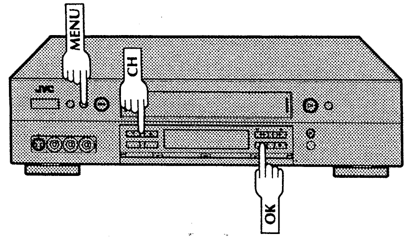
Counter reading
Switchable to the tape remaining time display

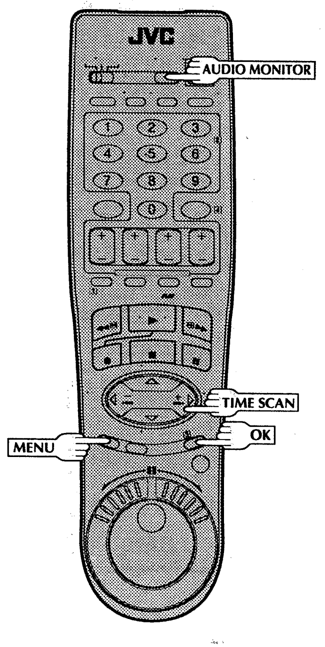
Operation mode
When the operation mode is changed, the new mode is displayed — RECORD (5 sec.), PLAY (5 sec.), FF/REW (5 sec. when engaged from Stop mode), RECORD PAUSE (for as long as Pause is engaged), and ITR *:** (5 sec.).

Tape speed indication

"Cassette Loaded" mark
When a cassette is loaded, the mark is displayed for 5 seconds. It blinks when the VCR's EJECT button is pushed.

INDEX indication





You can also select the soundtrack by simply pressing the remote control's **AUDIO MONITOR** button as follows:

Hi-Fi → Hi-Fi L → Hi-Fi R → Normal → Mix → Hi-Fi

Select The Soundtrack

Your VCR can record two soundtracks simultaneously (Normal and Hi-Fi) and play back the selected one, or both together. Or, when viewing a pre-recorded tape that contains two separate Hi-Fi audio programs, you can choose to listen to either one by selecting either "Hi-Fi L" or "Hi-Fi R" in step **3**.

1 ACCESS MAIN MENU SCREEN

Press **MENU**.

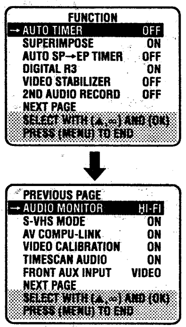
2 ACCESS FUNCTION SET SCREEN

Move the highlight bar (arrow) to "FUNCTION SET" by pressing **CH▲∞** or **TIME SCAN △▽**, then press **OK** or **TIME SCAN ▷**.

3 SELECT AUDIO MONITOR SET MODE

Move the highlight bar (arrow) to "AUDIO MONITOR" by pressing **CH ▲∞** or **TIME SCAN △▽**, then press **OK** or **TIME SCAN ▷** to select the desired mode:

- a– Hi-Fi
- b– Hi-Fi L
- c– Hi-Fi R
- d– Normal
- e– Mix



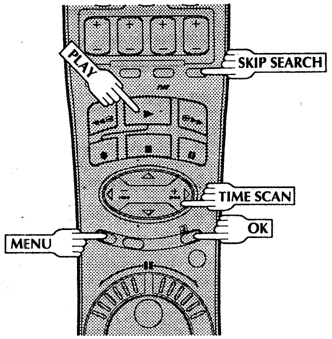
```
          FUNCTION
→ AUTO TIMER              OFF
  SUPERIMPOSE              ON
  AUTO SP→EP TIMER        OFF
  DIGITAL R3               ON
  VIDEO STABILIZER        OFF
  2ND AUDIO RECORD        OFF
  NEXT PAGE
  SELECT WITH (▲,∞) AND (OK)
  PRESS (MENU) TO END

  PREVIOUS PAGE
→ AUDIO MONITOR         HI-FI
  S-VHS MODE               ON
  AV COMPU-LINK            ON
  VIDEO CALIBRATION        ON
  TIMESCAN AUDIO           ON
  FRONT AUX INPUT       VIDEO
  NEXT PAGE
  SELECT WITH (▲,∞) AND (OK)
  PRESS (MENU) TO END
```

4 RETURN TO NORMAL SCREEN

Press **MENU**.

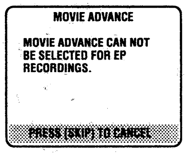
NOTES:

- *If the tape being played back has no Hi-Fi soundtrack, the Normal soundtrack will be heard no matter what choice you make in step 3.*
- *If RF connection is used for TV, even if Hi-Fi audio monitor is selected the sound will be mono and will be reproduced in both loudspeakers.*



ATTENTION

Movie Advance and Movie Advance (Preview) works only on prerecorded cassettes that have been recorded in the SP mode, and have no safety tab. If the VCR detects the EP mode after you press **OK** in step **4**, the following screen appears.



```
        MOVIE ADVANCE

MOVIE ADVANCE CAN NOT
BE SELECTED FOR EP
RECORDINGS.

  PRESS (SKIP) TO CANCEL
```

Skip Search will work for prerecorded EP tapes.

When "MOVIE ADVANCE" is selected...

- If you want to stop searching for the start of the movie, simply press **SKIP SEARCH** or **STOP**.

When "MOVIE ADVANCE (PREVIEW)" is selected...

- If **SKIP SEARCH** was inadvertently pressed, press it again to resume normal playback.
- While the VCR is searching for the next preview, if you see a preview you wish to view, press **SKIP SEARCH** and the VCR will immediately go to the start of that preview.
- If the VCR starts to reverse to a preview you do not wish to view, press **SKIP SEARCH** to initiate searching to the next preview.

NOTES:

- *Normally there is a period of black and no audio at the beginning and end of previews. The Movie Advance feature detects those parts where the picture fades to black and the audio fades to silence, and initiates fast-motion to skip over the detected previews.*
- *Some previews may not be detected and Movie Advance may not work properly.*
- *The setting you selected in step 3 remains in effect until the cassette is ejected.*
- *"MOVIE ADVANCE (PREVIEW)" does not use TimeScan when searching for the next preview.*

Patents Pending

Movie Advance

This feature helps you locate certain parts of prerecorded movies (rented or purchased) and works in two ways.

- You can go to the beginning of the movie, skipping over all previews.
- You can fast-motion the tape to the beginning of the next preview, so you can skip over previews one by one.

1 LOAD A CASSETTE

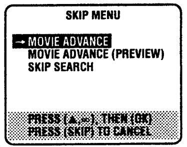
Insert a cassette that has a prerecorded movie (rented or purchased), with no safety tab, into the VCR. Playback begins automatically.

2 ACCESS SKIP MENU SCREEN

Press **SKIP SEARCH**.

3 SELECT MODE

Press **CH ▲∞** or **TIME SCAN △▽** to move the highlight bar (arrow) to your choice.



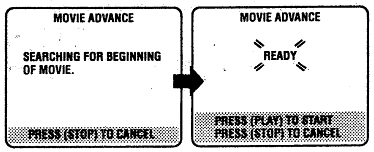
```
          SKIP MENU

→ MOVIE ADVANCE
  MOVIE ADVANCE (PREVIEW)
  SKIP SEARCH

  PRESS (▲,∞), THEN (OK)
  PRESS (SKIP) TO CANCEL
```

- a– Select "MOVIE ADVANCE" if you want to advance directly to the beginning of the movie.
- b– Select "MOVIE ADVANCE (PREVIEW)" if you want to advance to the next preview.
- c– Select "SKIP SEARCH*" if you do not want to perform Movie Advance, then press **OK** to go back to the normal screen. Pressing **SKIP SEARCH** activates the Skip Search function (☞ pg. 26).

* *If "CA PLAYBACK" is set to "AUTO" or "MANUAL" (☞ pg. 33), "COMMERCIAL ADVANCE" will be displayed on the screen instead of "SKIP SEARCH".*

4 PERFORM MOVIE ADVANCE

a– If you selected "MOVIE ADVANCE" in step **3** and press **OK**, the following screen will appear with a blue background. The VCR will rewind the beginning of the tape, then will fast-motion to the beginning of the movie. "READY" will appear and blink when the beginning of the movie is detected and the Stop mode will be engaged. Press **PLAY** to view the movie.



```
      MOVIE ADVANCE

SEARCHING FOR BEGINNING
OF MOVIE.

  PRESS (STOP) TO CANCEL
```

```
      MOVIE ADVANCE

          READY

  PRESS (PLAY) TO START
  PRESS (STOP) TO CANCEL
```

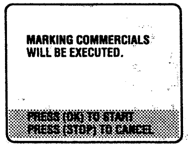
b– If you selected "MOVIE ADVANCE (PREVIEW)" in step **3** and press **OK**, the VCR will fast-motion to the beginning of the next preview and normal playback will resume when it is detected.
Each press of **SKIP SEARCH** fast-motions to the beginning of the next preview, thereby skipping over one preview each time.
The tape will forward-search a little past the start of the next preview, then will reverse-serach to the beginning of the preview and start playback.

Commercial Advance

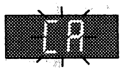
Your VCR is eqipped with the Commercial Advance feature, which can automatically fast-motion the tape during playback to skip over previously recorded TV commercials.

Commercial Advance works as follows:

1 When recording is finished, the following display will appear on the screen and the VCR's front display panel.



```
MARKING COMMERCIALS
WILL BE EXECUTED.

PRESS (OK) TO START
PRESS (STOP) TO CANCEL
```



∗ In case of timer recording, these displays will appear when all the preset programs are recorded. If you press **TIMER** to disengage the timer mode, these displays will appear even if all the programs are not recorded yet.

NOTE:

Commercials can only be marked if Commercial Advance Record is enabled (☞ pg. 33).

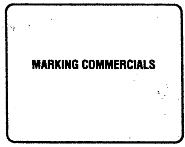
a– Press **OK** and step 2 will take place.
b– If you do not want to use Commercial Advance for the recorded program, press **STOP**.
c– If neither button is pressed within 60 seconds after the displays appear, step 2 will take place automatically.

IMPORTANT

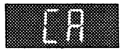
If you press **STOP** in this step or stop marking midway in step 2 before the VCR is finished marking the commercials, data necessary for Commercial Advance will be lost and this feature will not work with the recording you made.

2 The VCR rewinds the tape automatically to the beginning of the recording and seeks out the commercial groups which have been detected.

During search and marking

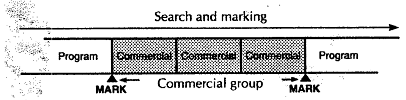


```
MARKING COMMERCIALS
```



∗ If you want to stop marking midway, press **STOP** so that "MARKING IN PROCESS" appears on the screen and "CA" blinks on the front display panel. While those are displayed (for 5 seconds), press **STOP** again to cancel Commercial Advance marking of the rest of the recordings.

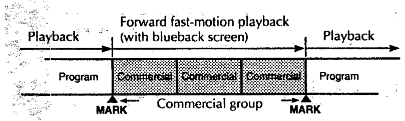
∗ If you want to watch a TV program while the VCR is marking commercials, first press **TV/VCR** on the remote control, then use the TV's channel selector to select the channel you want to watch.



After having marked the start and end of all commercial groups of the recording(s), the VCR goes to its Stop mode. In the case of timer recording or Instant Timer Recording, the VCR shuts off automatically.

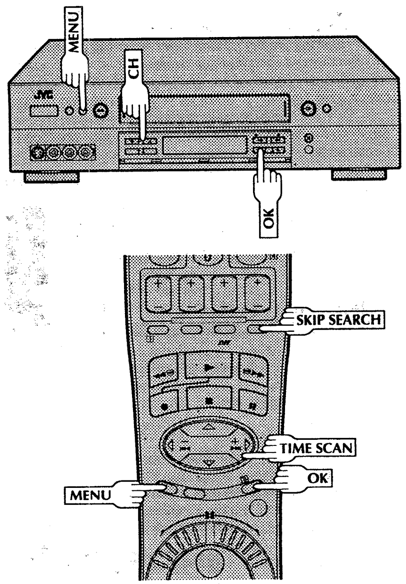
3 During playback, the VCR automatically (when enabled ☞ pg. 33) fast-motions (with blueback screen) (☞ pg. 38) during the commercial groups that were marked in step 2.

∗ When Commercial Advance is forwarding the tape to skip over commercials, "CA SKIP" will be displayed in the top right corner of the TV screen.



NOTES:

- *The Commercial Advance Record processes marks the tape when the picture fades to black and the audio fades to silence. Normally there is a period of black and no audio at the beginning and end of commercials.*
- *A black screen or a scene with no audio signal during a program may be detected as the start or end of a commercial.*
- *When using the timer to record two adjacent shows on the same channel, better commercial detection accuracy can be obtained by programming each show separately.*
- *If you record over a commercial start or end mark the Commercial Advance feature will not work correctly.*
- *Commercial Advance tested with 6 hours recordings, longer recordings may be possible depending on the number of commercials contained in the broadcast.*
- *The VCR will resume normal playback after skipping 15 minutes of tape if no commercial group end mark is detected.*
- *If the end of the tape is reached during recording, the display as illustrated in step 1 appears, then...*
  - *in the case of timer recording or Instant Timer Recording, after step 2 takes place, the cassette will be ejected and the power will shut off.*
  - *in the case of normal recording, after step 2 takes place, the VCR will rewind to the beginning of the tape.*
- *During automatic commercial skipping, if the user presses **STOP** or **PLAY**, the VCR will resume normal play; furthermore, if the tape is reversed to before the commercial group and played, the commercial group will not automatically be skipped.*
- *If an index code or the end of a recording is detected during Commercial Advance's forward fast-motion playback, normal playback resumes automatically.*
- *Commercial Advance disables commercial marking when the recording is less than 15 minutes.*
- *Commercial Advance does not mark the start of a commercial group when it is in the first or last two minutes of a recording.*
- *Commercial Advance does not mark commercial groups which are less than 59 seconds or groups which contain only one commercial.*
- *Some portions of programs may be detected as commercials.*
- *Some commercials may not be detected properly.*



"CA(Commercial Advance) RECORD" and "CA PLAYBACK" are set to " OFF " at the factory. To set Commercial Advance perform the following steps to set "CA RECORD" to "ON" and "CA PLAYBACK" to "AUTO".

1 ACCESS MAIN MENU SCREEN

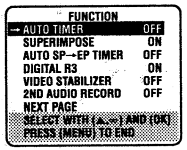
Press **MENU**.

2 ACCESS FUNCTION SET SCREEN

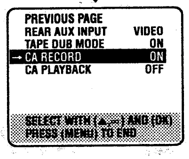
Move the highlight bar (arrow) to "FUNCTION SET" by pressing **CH ▲∞** or **TIME SCAN △▽**, then press **OK** or **TIME SCAN ▷**.

3 SELECT CA RECORD SET MODE

Move the highlight bar (arrow) to "CA RECORD" by pressing **CH ▲∞** or **TIME SCAN △▽**, then press **OK** or **TIME SCAN ▷** to set to "ON".



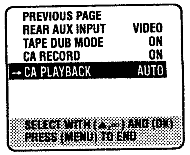
```
           FUNCTION
→ AUTO TIMER            OFF
  SUPERIMPOSE            ON
  AUTO SP→EP TIMER      OFF
  DIGITAL R3             ON
  VIDEO STABILIZER      OFF
  2ND AUDIO RECORD      OFF
  NEXT PAGE
  SELECT WITH (▲,∞) AND (OK)
  PRESS (MENU) TO END
```



```
  PREVIOUS PAGE
  REAR AUX INPUT      VIDEO
  TAPE DUB MODE          ON
→ CA RECORD              ON
  CA PLAYBACK           OFF

  SELECT WITH (▲,∞) AND (OK)
  PRESS (MENU) TO END
```

4 SELECT CA PLAYBACK SET MODE

Move the highlight bar (arrow) to "CA PLAYBACK" by pressing **CH ▲∞** or **TIME SCAN △▽**, then press **OK** or **TIME SCAN ▷** to set to "AUTO".



```
  PREVIOUS PAGE
  REAR AUX INPUT      VIDEO
  TAPE DUB MODE          ON
  CA RECORD              ON
→ CA PLAYBACK          AUTO

  SELECT WITH (▲,∞) AND (OK)
  PRESS (MENU) TO END
```

- Select "AUTO" to automatically skip over CA recorded commercials during playback.
- Select "MANUAL" to manually skip over CA recorded commercials by pressing **SKIP SEARCH**.
- Select "OFF" to disable CA Playback of CA recorded commercials.
- Press **SKIP SEARCH** during playback, with "MANUAL" (or "AUTO") selected, to fast-motion the tape to the end of the next commercial group or to the end of the recording, and then resume normal playback.

NOTE:

*If you press **SKIP SEARCH** during a commercial, the VCR may not resume normal playback at the end of the group of commercial. If this occurs press **PLAY** or **STOP** to resume normal playback.*

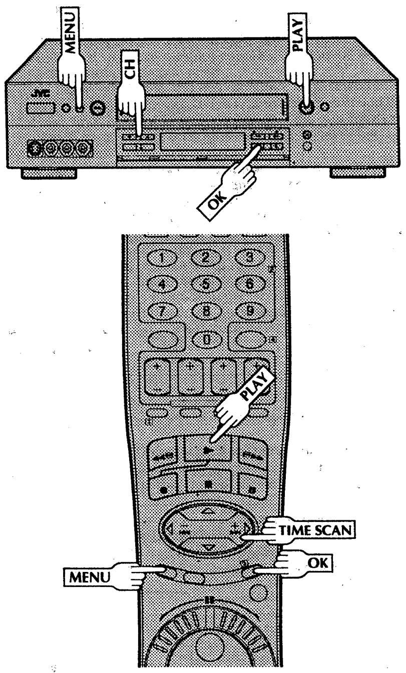
5 RETURN TO NORMAL SCREEN

Press **MENU**.

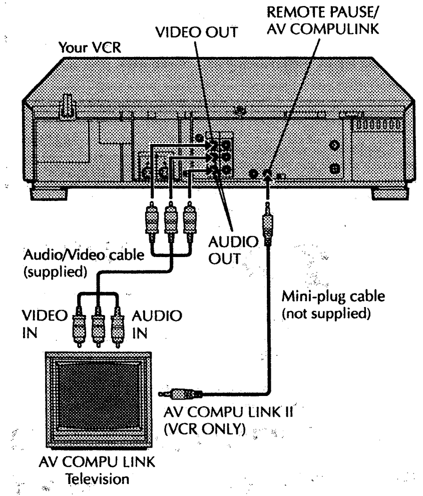
NOTES:

- *If you set "CA RECORD" to "ON" while recording is in progress, the VCR will mark an index code at that location.*
- *You cannot change the "CA PLAYBACK" setting during Commercial Advance fast-motion playback.*
- *While recording is in progress with "CA RECORD" set to "ON", you cannot mark an index code manually, nor change the recording tape speed.*
- *During playback with "CA PLAYBACK" set to "OFF", pressing **SKIP SEARCH** starts fast-motion playback for 30 seconds on the counter (☞ pg. 26).*
- *If there is a power outage while recording is in progress with "CA RECORD" set to "ON", commercials that are recorded after the power is restored may not be detected properly.*
- *If you want to stop recording when "CA RECORD" is set to "ON", be sure to press **STOP**. If you press **POWER** or **TIMER** to stop recording, that may affect detection accuracy for commercials recorded afterwards.*

U.S. Pat. No. 5,333,091



Example



AV COMPU LINK Playback

Your VCR is compatible with JVC's AV COMPU LINK components, including amplifiers (or receivers) and televisions. AV COMPU LINK provides one touch control of the audio and video components that are linked via their AV COMPU LINK connectors.

For example: simply load a cassette in the VCR and press **PLAY** and the AV COMPU LINK components automatically power on, the TV's AV mode is selected and the VCR goes into play mode. (PLAY need not be pressed if the cassette's record safety tab is removed.)

1 MAKE CONNECTION

Connect your VCR to an AV COMPU LINK component as shown in the illustration in the left column.

- The mini-plug cable is a mono 3.5 mm mini-plug to mono 3.5 mm mini-plug connector.

2 ACCESS MAIN MENU SCREEN

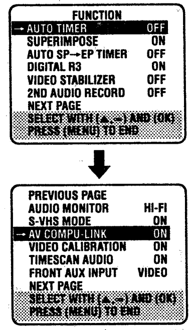
Press **MENU**.

3 ACCESS FUNCTION SET SCREEN

Press **CH▲∞** or **TIME SCAN** △▽ to move the highlight bar (arrow) to "FUNCTION SET", then press **OK** or **TIME SCAN** ▷.

4 ENABLE AV COMPU LINK PLAYBACK

Press **CH▲∞** or **TIME SCAN** △▽ to move the highlight bar (arrow) to "AV COMPU-LINK", then press **OK** or **TIME SCAN** ▷ to set to "ON".



```
            FUNCTION
→ AUTO TIMER                OFF
  SUPERIMPOSE                ON
  AUTO SP→EP TIMER          OFF
  DIGITAL R3                 ON
  VIDEO STABILIZER          OFF
  2ND AUDIO RECORD          OFF
  NEXT PAGE
  SELECT WITH (▲,∞) AND (OK)
  PRESS (MENU) TO END
```

```
  PREVIOUS PAGE
  AUDIO MONITOR           HI-FI
  S-VHS MODE                 ON
→ AV COMPU-LINK              ON
  VIDEO CALIBRATION          ON
  TIMESCAN AUDIO             ON
  FRONT AUX INPUT         VIDEO
  NEXT PAGE
  SELECT WITH (▲,∞) AND (OK)
  PRESS (MENU) TO END
```

5 RETURN TO NORMAL SCREEN

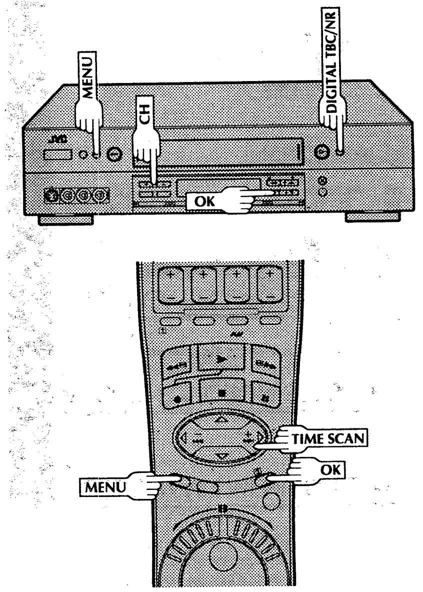
Press **MENU**.

6 PERFORM AV COMPU LINK PLAYBACK

Simply insert a cassette and press **PLAY** (if the cassette's record safety tab has been removed, playback begins automatically). Linked components are turned on, and the TV set to its AV mode, automatically!

NOTE:

Connection varies depending on the type of JVC TV you have. Please refer to the TV's instruction manual when making this connection.



Digital TBC/NR

Your VCR is equipped with the Digital TBC (Time Base Corrector) that removes jitter from fluctuating video signals to deliver a stable picture even with old tapes and rental cassettes. The on/off of Digital 3-DNR (Noise Reduction) which cuts noise and enables clear picture reproduction is also linked to this function.

* The default setting is "ON".

We recommend that you use the Digital TBC feature when...

... playing back a tape recorded on a camcorder.

... playing back a tape repeatedly used.

... using this VCR as the player for editing.

1 SELECT DIGITAL TBC/NR SET MODE

Press **DIGITAL TBC/NR** so that the button lights up.

- Pressing the button again turns off this function.

NOTES:

- *If you play back a tape recorded under poor TV reception condition, there may be cases where the picture becomes more stable with Digital TBC/NR set to off.*
- *When Digital TBC/NR is set to on, if you play back a tape where certain types of signals are recorded (using a PC or some character generators), the playback picture may be distorted. If this is the case, turn off Digital TBC/NR.*
- *Digital TBC/NR and Video Stabilizer (☞ pg. 28) cannot be used at the same time; if you turn on Digital TBC/NR when "VIDEO STABILIZER" is set to "ON", Video Stabilizer will be automatically turned "OFF". Make sure Digital TBC/NR is off when you want to use Video Stabilizer.*

Digital R3

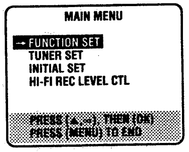
Digital R3 picture system applies edge correction to the luminance signal to enhance detail.

1 ACCESS MAIN MENU SCREEN

Press **MENU**.

2 ACCESS FUNCTION SET SCREEN

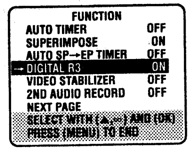
Move the highlight bar (arrow) to "FUNCTION SET" by pressing **CH▲∞** or **TIME SCAN** △▽, then press **OK** or **TIME SCAN** ▷.



```
           MAIN MENU

→ FUNCTION SET
  TUNER SET
  INITIAL SET
  HI-FI REC LEVEL CTL

  PRESS (▲,∞), THEN (OK)
  PRESS (MENU) TO END
```

3 SELECT DIGITAL R3 SET MODE

Move the highlight bar (arrow) to "DIGITAL R3" by pressing **CH ▲∞** or **TIME SCAN** △▽, then press **OK** or **TIME SCAN** ▷ to set to "ON".



```
            FUNCTION
  AUTO TIMER                OFF
  SUPERIMPOSE                ON
  AUTO SP→EP TIMER          OFF
→ DIGITAL R3                 ON
  VIDEO STABILIZER          OFF
  2ND AUDIO RECORD          OFF
  NEXT PAGE
  SELECT WITH (▲,∞) AND (OK)
  PRESS (MENU) TO END
```

4 RETURN TO NORMAL SCREEN

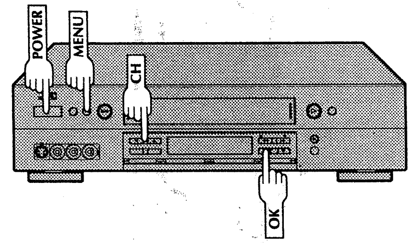
Press **MENU**.

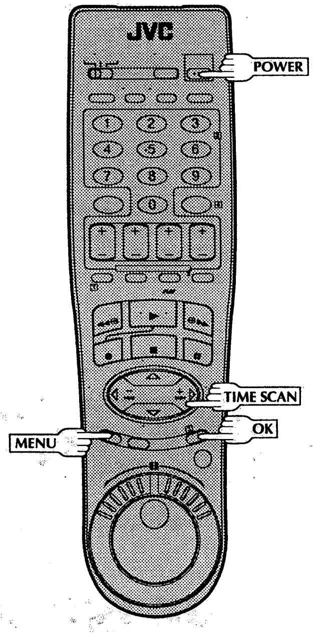
NOTES:

- *Normally it is recommendable to keep "DIGITAL R3" set to "ON".*
- *Depending on the type of tape being used, picture quality may be better with "DIGITAL R3" set to "OFF".*
- *If you use this VCR as the player for editing, be sure to set "DIGITAL R3" to "OFF" before starting.*

Active Video Calibration

Turn on the TV and select the VCR channel 3 or 4 (or AV mode).





Active Video Calibration checks the condition of the tape during recording and playback, and compensates for poor reproduction to provide the best quality recording and playback pictures. *The default setting is "ON".

Preparation

1 TURN ON THE VCR

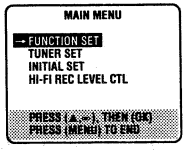
Press **POWER**.

2 ACCESS MAIN MENU SCREEN

Press **MENU**.

3 ACCESS FUNCTION SET SCREEN

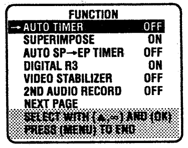
Press **CH▲∞** or **TIME SCAN** △▽ to move the highlight bar (arrow) to "FUNCTION SET", then press **OK** or **TIME SCAN** ▷.



```
MAIN MENU

→FUNCTION SET
 TUNER SET
 INITIAL SET
 HI-FI REC LEVEL CTL

PRESS (▲,∞), THEN (OK)
PRESS (MENU) TO END
```

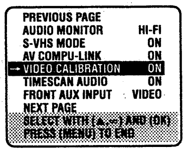
4 SELECT VIDEO CALIBRATION MODE

Press **CH ▲∞** or **TIME SCAN** △▽ to move the highlight bar (arrow) to "VIDEO CALIBRATION", then press **OK** or **TIME SCAN** ▷ to set to "ON" or "OFF".



```
         FUNCTION
→AUTO TIMER            OFF
 SUPERIMPOSE            ON
 AUTO SP→EP TIMER      OFF
 DIGITAL R3             ON
 VIDEO STABILIZER      OFF
 2ND AUDIO RECORD      OFF
 NEXT PAGE
SELECT WITH (▲,∞) AND (OK)
PRESS (MENU) TO END
```

⬇



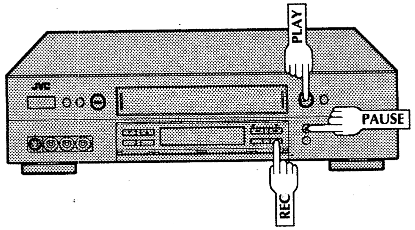
```
 PREVIOUS PAGE
 AUDIO MONITOR       HI-FI
 S-VHS MODE             ON
 AV COMPU-LINK          ON
→VIDEO CALIBRATION      ON
 TIMESCAN AUDIO         ON
 FRONT AUX INPUT     VIDEO
 NEXT PAGE
SELECT WITH (▲,∞) AND (OK)
PRESS (MENU) TO END
```

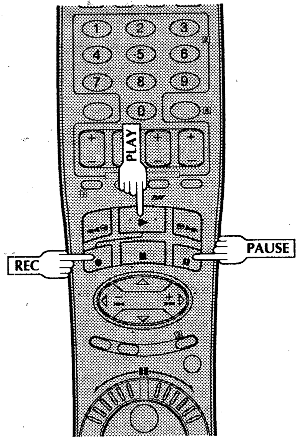
NOTE:

When recording or when playing back tapes recorded on this VCR set the Video Calibration to "ON".

5 RETURN TO NORMAL SCREEN

Press **MENU**.





Playback

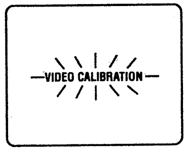
The VCR assesses the quality of the tape once you start playback.

Perform steps **1** and **2** on page 22 ("Simple Playback") before continuing.

1 START PLAYBACK

Press **PLAY**.

- The VCR adjusts the playback picture quality based on the quality of the tape in use.



NOTES:

- *When using rental tapes, or tapes recorded on other VCRs, set "VIDEO CALIBRATION" in step **4** of the Preparation procedure to either "ON" or "OFF" as desired to give the best picture (☞ pg. 36).*
- *The Video Calibration screen only appears at the beginning of automatic tracking. Even though the screen doesn't appear after that, the Video calibration function is operative.*
- *To display the Video Calibration screen, "SUPERIMPOSE" must be set to "ON" or the Video Calibration screen will not appear (☞ pg. 29).*

Recording

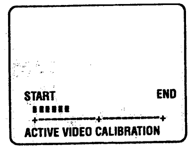
Perform steps **1** – **3** on page 23 ("Simple Recording") before continuing.

1 START RECORDING

Press and hold **REC** and press **PLAY** on the remote control, or press **REC** on the VCR's front panel.

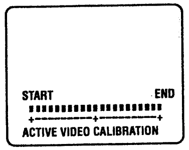
- The VCR takes about 7 seconds to assess the quality of the tape in use, then recording begins with the picture level optimized.

DURING CALIBRATION



⬇

CALIBRATION COMPLETE



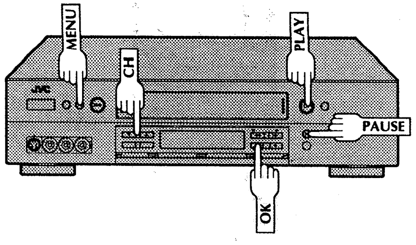
NOTES:

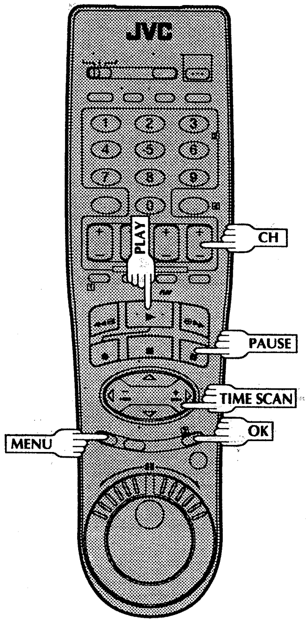
- *Calibration occurs immediately prior to both the first SP and the first EP recording after inserting the cassette. It does not take place during recording.*
- *In the case of timer recording, calibration takes place for both SP and EP before the first timer recording after inserting the cassette (regardless of the tape speed selected for that recording).*
- *Once the cassette is ejected, the calibration data is canceled. The next time the cassette is used for recording, calibration is re-performed.*
- *While Video Calibration is operative, the **PAUSE** button will not function.*
- *To display the Video Calibration screen, "SUPERIMPOSE" must be set to "ON" or the Video Calibration screen will not appear (☞ pg. 29).*

ATTENTION

- ■ As calibration takes place before recording actually starts, there is a delay of about 7 seconds after **REC** and **PLAY** on the remote, or **REC** on the VCR's front panel, are pressed. To make sure you record the desired scene or program completely, first perform the following steps:
  1) Press and hold **PAUSE**, and press **REC** to engage the RECORD PAUSE mode.
     - The VCR then automatically checks the condition of the tape and, after about 7 seconds, re-enters RECORD PAUSE.
  2) Press **PLAY** to start recording.
- ■ If you want to bypass Video Calibration and start recording right away, set "VIDEO CALIBRATION" to "OFF" in step **4** of the Preparation procedure (☞ pg. 36).

TimeScan





Your VCR is equipped with the TimeScan function. TimeScan allows noise free pictures to be displayed on your TV screen in the forward and reverse search modes. Audio will be played back at normal speed during any of the TimeScan modes (☞ pg. 39). TimeScan allows you to view a program in search mode while listening to the audio.

NOTES:

- *"TIMESCAN AUDIO" must be set to "ON", or the sound will not be heard in TimeScan mode (☞ pg. 39).*
- *The audio will not synchronize with the video in TimeScan modes.*
- *During 1.5x speed TimeScan the audio playback speed will also be 1.5 times normal, so dialog will sound fast-talking.*
- *In Pause mode 3 seconds (approx.) of audio will be played back repeatedly. (☞ pg. 24)*
- *In TimeScan search modes some of the audio information will not be played so that the audio can keep up with the video.*

Audio signal during TimeScan

Playback tape ① ② ③ ④ ⑤

Sound of ①, ③ and ⑤ is heard.
Sound of ② and ④ is not heard.
Output audio signal is normal (monaural) sound.

Variable-Speed Search/ Reverse Motion Playback

1 ACTIVATE VARIABLE-SPEED SEARCH

During playback or still, repeatedly press and release **TIME SCAN |◀◀** or **▶▶|** to select the search speed. (Refer to the chart on page 39 for playback speeds).

- To increase the speed in the forward direction, press and release **▶▶|** repeatedly to select the various forward search modes.
- To decrease the speed in the forward direction, press and release **|◀◀**.
- To play in reverse slow motion, and in reverse play mode, continue to press **|◀◀** repeatedly after selecting all the forward slow motion modes. (Refer to the chart on page 39 for playback speeds).

To resume normal playback, press **PLAY**.

If the superimposed indication jitters vertically during TimeScan, adjust until the optimum condition is achieved by using manual tracking (☞ pg. 26).

TimeScan

Names of special-effects playback	Reverse							Forward							
	Search			Play	Slow-Motion (Pro-Slow)**		Still*	Slow-Motion (Pro-Slow)**		Play	Search				
Speed	-7x	-5x	-3x	-1x	-1/2x	-1/3x	0	1/3x	1/2x	1x	1.5x	2x	3x	5x	7x
Audio output	Audio is output.				Audio is not output.		Audio is output.	Audio is output.		Audio is output.					

* Still mode cannot be engaged using the **TIME SCAN** buttons. Still mode can only be engaged by pressing the **PAUSE** button.

** Smooth slow motion delivering an uninterrupted moving image without distortion.

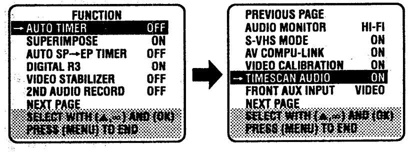
- The speed is shown in the upper right corner of the TV screen for approx. 5 seconds.
- The TimeScan search speed is the same for SP and EP recordings.
- To resume normal playback, press **PLAY**.
- Picture may be distorted at the position where the recording speed is switched.
- The picture may be noisy for a moment when you change the playback speed.
- During high-speed search with a tape containing both SP and EP recordings, the search speed will change automatically to 7x normal playback speed with TimeScan when the recording tape speed switches from EP to SP.
- Depending on the tape in use, noise may appear or the upper part of the picture may be distorted.
- Picture may appear distorted in comparison to normal playback.
- In TimeScan mode there will be a time lag between the video and the audio and noise may appear in the audio signal.
- TimeScan sound quality will differ in comparison to normal playback.
- When material such as music videos where there is non-stop sound (very few breaks in the soundtrack) are viewed at 2x normal speed, the audio playback may be faster than normal.
- When the playback direction is reversed, it takes approximately 6 seconds until sound is heard.
- ±1/3x slow-motion playback is possible with SP recordings only.
- Depending on the type of tape contents, the sound may not be clear during forward slow-motion playback.
- Pro-Slow cannot be activated by pressing **PAUSE** for longer than 2 seconds.
- Depending on the type of tape in use, noise may appear during Pro-Slow. When this happens, try manual tracking (☞ pg. 26).
- The operations by the **JOG** dial/**SHUTTLE** ring do not include TimeScan; noise will appear on the screen and audio will not be output.

If you don't want to hear TimeScan audio, set "TIMESCAN AUDIO" to "OFF".

TimeScan Audio

The audio output can be set ON/OFF during TimeScan. Select ON/OFF as required. *The default setting is "ON".

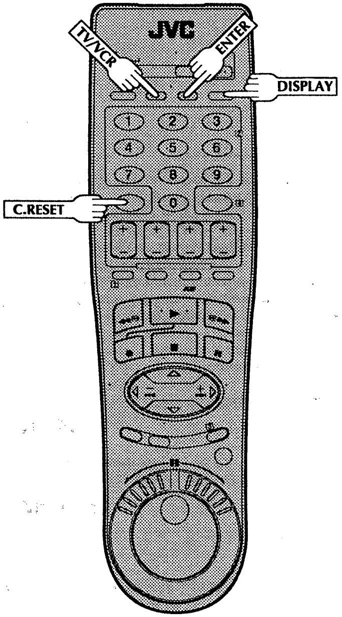
1. Press **MENU** to access the Main Menu screen.
2. Move the highlight bar (arrow) to "FUNCTION SET" by pressing **CH▲∞** or **TIME SCAN△▽**, then press **OK** or **TIME SCAN ▷**.
3. Move the highlight bar (arrow) to "TIMESCAN AUDIO" by pressing **CH▲∞** or **TIME SCAN △▽**, then press **OK** or **TIME SCAN ▷** to select to "ON" or "OFF".
4. Press **MENU** to return to the normal screen.



```
FUNCTION
→ AUTO TIMER            OFF
  SUPERIMPOSE            ON
  AUTO SP→EP TIMER      OFF
  DIGITAL R3             ON
  VIDEO STABILIZER      OFF
  2ND AUDIO RECORD      OFF
  NEXT PAGE
  SELECT WITH (▲,∞) AND (OK)
  PRESS (MENU) TO END
```

```
  PREVIOUS PAGE
  AUDIO MONITOR       HI-FI
  S-VHS MODE             ON
  AV COMPU-LINK          ON
  VIDEO CALIBRATION      ON
→ TIMESCAN AUDIO         ON
  FRONT AUX INPUT     VIDEO
  NEXT PAGE
  SELECT WITH (▲,∞) AND (OK)
  PRESS (MENU) TO END
```

Recording Features



Record One Program While Watching Another

1 ENGAGE TV MODE

During recording...

- Press **TV/VCR**. The VCR's VCR indicator goes out. (If you are using the RF connection (☞ pg. 6) to view the output from your VCR, the TV broadcast being recorded disappears.)
- If you are using the AV connection (☞ pg. 6) to view the output from your VCR, change the TV's input mode from AV to TV.

2 SELECT CHANNEL FOR VIEWING

Use the TV's channel selector to set the channel you want to watch.

Display Elapsed Recording Time

1 RESET COUNTER TO ZERO

Before recording starts, press **C.RESET.** The counter resets to zero and displays the exact elapsed time as the tape runs.

2 DISPLAY ELAPSED TIME ON SCREEN

During recording, press **ENTER** at any time to see the elapsed time.
All indications corresponding to the current status of the VCR are displayed for 5 seconds. The counter display remains on the screen indicating the elapsed time.
Press **ENTER** again to remove the display.

- Make sure "SUPERIMPOSE" is set to "ON" (☞ pg. 29).
- The indications are not recorded.
- Press **DISPLAY** to change to the COUNT display if "REMAIN" is displayed.

Display Tape Remaining Time

1 DISPLAY COUNTER INFORMATION

Press **ENTER.**
All indications corresponding to the VCR's current status are displayed for 5 seconds. The counter display remains on the screen indicating the elapsed time.

2 DISPLAY TAPE REMAINING TIME

Press **DISPLAY** until "REMAIN" appears on screen. The approximate tape remaining time appears on the TV screen and also on the VCR display panel with a "◣" indicator.

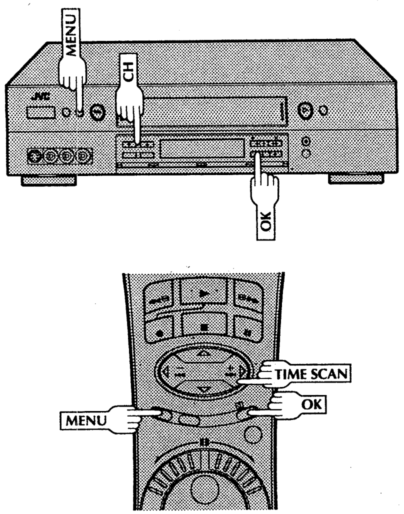
- The tape remaining time is calculated based on the tape speed (SP or EP) being used. The indicated remaining time is only an estimate.
- Press **DISPLAY** to change the on-screen display from REMAIN to COUNT and vice versa; and to show counter reading, channel number, clock time or tape remaining time on the front display panel. Then channel number will not be displayed when the VCR is playing a tape.

3 EXIT THE DISPLAY

Press **ENTER** again.

NOTES:

- *"SUPERIMPOSE" must be set to "ON", or the on-screen display will not appear (☞ pg. 29).*
- *Near the beginning of the tape, the tape remaining estimate may be inaccurate. However, the estimate becomes more accurate as the tape comes closer to the end.*
- *Depending on the type of tape used, the tape remaining time reading may not appear right away, or may not be correct. "- -:- -" may sometimes appear, or the display may blink on occasion.*
- *The tape remaining time indication is not accurate when using VHS-C tapes with VHS-C adapter.*



S-VHS (Super VHS), S-VHS ET and VHS

Your VCR can record in S-VHS, S-VHS ET or VHS.

S-VHS allows you to make high quality video recordings with a horizontal resolution of 400 lines. This compares with the 240 lines of resolution of normal VHS recordings. To achieve the highest quality picture we recommend that you record in S-VHS mode.

By using S-VHS ET it is possible to record and play back with S-VHS picture quality on VHS cassettes with this VCR. For details, refer to page 42.

To record in S-VHS;
- perform the steps **1 – 4** below to set the "S-VHS MODE" to "ON".
- then, insert a cassette marked "S-VHS", the S-VHS indicator will light on the display panel.

The S-VHS recording mode will be automatically selected.

To record in S-VHS ET on a VHS high grade cassette;
- press **S-VHS ET** and set to "ON".

☞ "Super VHS ET" on page 42.

To record in VHS;
- insert a cassette marked "VHS".
- press **S-VHS ET** and set to "OFF".

The VHS recording mode will be automatically selected regardless of the S-VHS mode setting.

To record in VHS on an S-VHS cassette;
- insert the cassette marked "S-VHS", the S-VHS indicator will light on the display panel.
- then, perform the steps **1 – 4** below to set the "S-VHS MODE" to "OFF"; the S-VHS indicator will go out.

The VHS recording mode will be selected.

NOTE:

Tapes recorded in S-VHS or S-VHS ET mode can not be played back successfully on normal VHS VCRs.

1 ACCESS MAIN MENU SCREEN

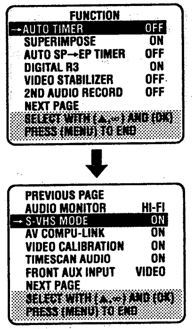
Press **MENU.**

2 ACCESS FUNCTION SET SCREEN

Move the highlight bar (arrow) to "FUNCTION SET" by pressing **CH▲∞** or **TIME SCAN△▽**, then press **OK** or **TIME SCAN ▷**.

3 SELECT S-VHS MODE

Move the highlight bar (arrow) to "S-VHS MODE" by pressing **CH▲∞** or **TIME SCAN△▽**, then press **OK** or **TIME SCAN ▷** to set to "ON" or "OFF".



```
           FUNCTION
→AUTO TIMER              OFF
 SUPERIMPOSE              ON
 AUTO SP→EP TIMER        OFF
 DIGITAL R3               ON
 VIDEO STABILIZER        OFF
 2ND AUDIO RECORD        OFF
 NEXT PAGE
 SELECT WITH (▲,∞) AND (OK)
 PRESS (MENU) TO END
```

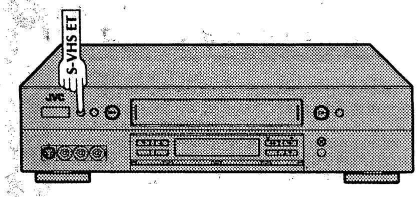
```
 PREVIOUS PAGE
 AUDIO MONITOR         HI-FI
→S-VHS MODE               ON
 AV COMPU-LINK            ON
 VIDEO CALIBRATION        ON
 TIMESCAN AUDIO           ON
 FRONT AUX INPUT       VIDEO
 NEXT PAGE
 SELECT WITH (▲,∞) AND (OK)
 PRESS (MENU) TO END
```

4 RETURN TO NORMAL SCREEN

Press **MENU.**

NOTE:

When playing back a tape that has been recorded in S-VHS or S-VHS ET, the S-VHS indicator lights on the display panel regardless of the "S-VHS MODE" setting.

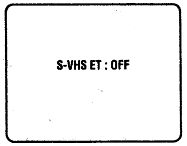


Super VHS ET

Your VCR is equipped with Super VHS ET that makes it possible to record with S-VHS picture quality on VHS cassettes.

1 SELECT S-VHS ET SET MODE

Press **S-VHS ET**. The current setting appears on the screen for about 5 seconds.


S-VHS ET : OFF

2 ENGAGE S-VHS ET MODE

While the current setting is displayed on the screen, press **S-VHS ET** again to set to "ON".

- The "S-VHS" indicator lights on the front display panel.

NOTES:

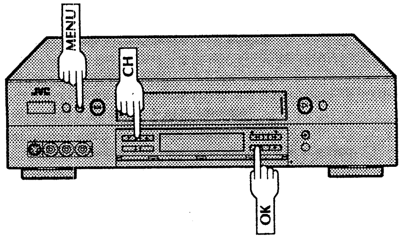
- *You cannot activate the S-VHS ET function...*
  ...while recording is in progress.
  ...while timer-recording (incl. Instant Timer Recording ☞ pg. 45) is in progress.
  ...while Video Calibration (☞ pg. 36) is in progress.
  ...when the VCR's power is off.
- *S-VHS ET does not work with S-VHS tapes.*

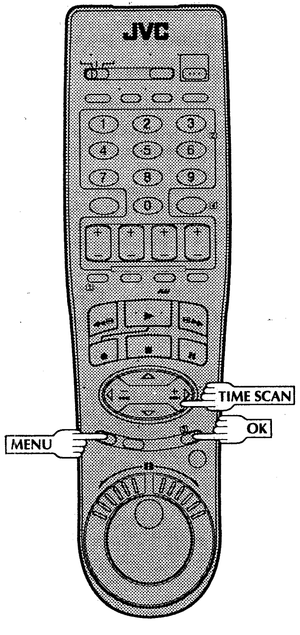
S-VHS ET

This facility allows recording with S-VHS picture quality on VHS cassettes. You can play back those cassettes recorded in S-VHS ET on a VCR equipped with S-VHS ET.

NOTES:

- *To obtain the highest quality recording and playback pictures over a longer period on this model, S-VHS recording on S-VHS tape is recommended.*
- *You can play back S-VHS ET recordings not only on this VCR but also on another VHS VCR equipped with S-VHS ET.*
  ** It is recommended to specifically label S-VHS ET recordings so you can easily distinguish them from regular VHS recordings.*
- *S-VHS ET recordings can also be played back on an S-VHS VCR or a VHS VCR equipped with SQPB (S-VHS QUASI PLAYBACK) function. However, there may be cases where S-VHS ET playback is not possible on a particular VCR.*
- *Frequent still, frame-by-frame and slow-motion playback may damage the tape and cause picture degradation.*
- *With some tapes, better picture quality may not be obtained even with S-VHS ET recording. It is recommended that you do test record beforehand to make sure whether better results can be obtained.*
- *High Grade tapes are recommended for superior results.*
- *Make sure that "VIDEO CALIBRATION" is set to "ON" at the Function screen (☞ pg. 36).*
- *During S-VHS ET playback, noise may appear depending on tape quality.*
- *Noise may appear during still, frame-by-frame, slow-motion playback and TimeScan search.*
- *If the playback picture becomes blurred or interrupted, use a cleaning cassette.*





Stereo And SAP (Second Audio Program)

Your VCR's built-in MTS decoder enables reception of Multi-channel TV Sound broadcasts.
When the channel is changed on the VCR ...

- The "STEREO" indication appears on the screen for about 5 seconds if the program is a stereo broadcast.
- The "SAP" indication appears on the screen for about 5 seconds if the program is a SAP broadcast.
- Both indications appear when a stereo program is accompanied by SAP audio.

To Record Stereo Programs . . .
. . . simply follow the basic recording procedure.

To Listen To Stereo Soundtrack During Recording . . .
. . . set "AUDIO MONITOR" to "HI-FI" at the Function screen (☞ pg. 30).

To Record SAP Programs . . .

1 ACCESS MAIN MENU SCREEN

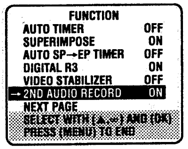
Press **MENU**.

2 ACCESS FUNCTION SET SCREEN

Move the highlight bar (arrow) to "FUNCTION SET" by pressing **CH▲∞** or **TIME SCAN △▽**, then press **OK** or **TIME SCAN ▷**.

3 SELECT 2ND AUDIO RECORD SET MODE

Move the highlight bar (arrow) to "2ND AUDIO RECORD" by pressing **CH▲∞** or **TIME SCAN△▽**, then press **OK** or **TIME SCAN ▷** to set to "ON".

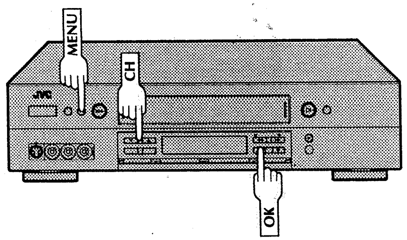

FUNCTION
AUTO TIMER OFF
SUPERIMPOSE ON
AUTO SP→EP TIMER OFF
DIGITAL R3 ON
VIDEO STABILIZER OFF
→2ND AUDIO RECORD ON
NEXT PAGE
SELECT WITH (▲,∞) AND (OK)
PRESS (MENU) TO END

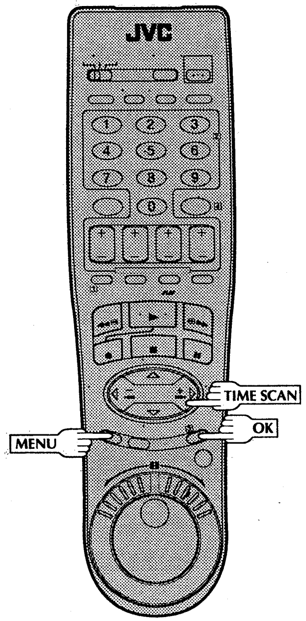
4 RETURN TO NORMAL SCREEN

Press **MENU**.

NOTES:

- *If a SAP program is received and "2ND AUDIO RECORD" is set to "ON", the SAP audio is recorded on both the Normal and Hi-Fi tracks. The main audio program is not recorded.*
- *If a non-SAP program is received, the main audio is recorded on both the Hi-Fi and Normal audio tracks.*





Hi-Fi Audio Recording Level Control

Your VCR allows manual adjustment of the Hi-Fi audio recording level. Although the preset audio recording level is satisfactory for normal recording, if the sound you are going to record is too loud or too low, adjust the audio recording level while referring to the VCR's audio level meters.

1 ACCESS MAIN MENU SCREEN

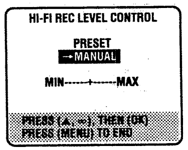
Press **MENU**.

2 ACCESS HI-FI REC LEVEL CONTROL SCREEN

Move the highlight bar (arrow) to "HI-FI REC LEVEL CTL" by pressing **CH ▲∞** or **TIME SCAN** △▽, then press **OK** or **TIME SCAN** ▷.

3 SELECT MODE

Move the highlight bar (arrow) to "MANUAL" by pressing **CH ▲∞** or **TIME SCAN** △▽, then press **OK** or **TIME SCAN** ▷.


HI-FI REC LEVEL CONTROL

PRESET
→MANUAL

MIN------+------MAX

PRESS (▲, ∞), THEN (OK)
PRESS (MENU) TO END

4 ADJUST AUDIO RECORDING LEVEL

Press **TIME SCAN** △ or ▽.

- To move the on-screen's audio levels by one division of the scale, press **TIME SCAN** △ or **TIME SCAN** ▽ briefly for 5 times in succession. To move the audio levels faster, keep **TIME SCAN** △ or **TIME SCAN** ▽ presssed.
- Adjust the recording level while watching the VCR's audio level meters. Set the level so that maximum volume causes the meters to vary between 0dB to 4dB.

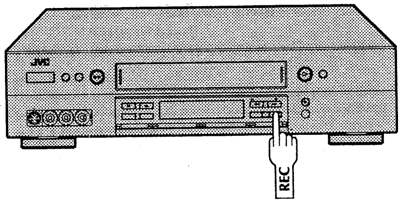
5 RETURN TO NORMAL SCREEN

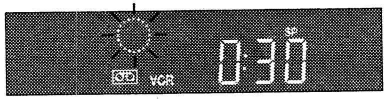
Press **MENU**.

NOTE:

- *Noise will increase if the recording level is too low, while distortion will increase if the level is too high.*

Instant Timer Recording (ITR)





This easy method lets you record from 30 minutes to 6 hours (selectable in 30-min. increments) and shuts the VCR off after recording is finished.

1 START RECORDING

Press **REC** on the front panel.

2 ENGAGE ITR MODE

Press **REC** again. " ○ " blinks and 0:30 appears on the front display panel.

3 SET RECORDING DURATION

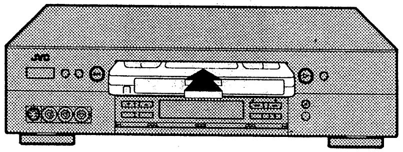
If you want to record for more than 30 minutes, press **REC** to extend the time. Each press extends recording time by 30 minutes.

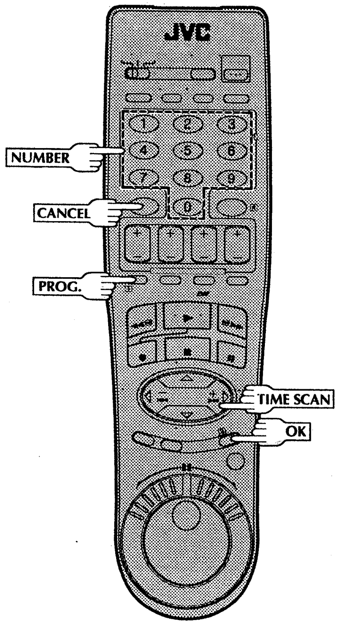
NOTES:

- *You can only perform ITR using the* ***REC*** *button on the VCR's front panel.*
- *After you set the ITR time, the previous display reappears.*
- *To check the remaining time, press* ***REC*** *once during recording and the remaining time will be displayed for about 5 seconds. Be careful not to press* ***REC*** *again within these 5 seconds, or you will round the recording time up to the next 30 minute increment.*

VCR Plus+ Timer Programming

Turn on the TV and select the VCR channel 3 or 4 (or AV mode).





Timer recording allows you to program the VCR to automatically record a program that will be broadcast at some future time.
The timer record function can be programmed using VCR Plus+ or Express Timer Programming up to 8 shows as far as a year in advance. (☞ pg. 46 or 50)
The VCR Plus+ timer programming system eliminates the need to input channel, date, start and stop time data when setting the timer record function. Simply key in the PlusCode number for the TV program you wish to record and the VCR's timer will be automatically programmed. (The PlusCodes are the numbers next to the programs in most TV listings.)

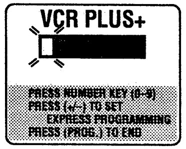
1 LOAD A CASSETTE

Make sure the record safety tab is present.

- The VCR's power comes on automatically.

2 ACCESS VCR PLUS+ SCREEN

Press **PROG.** on the remote control.



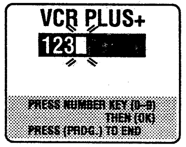
VCR PLUS+

PRESS NUMBER KEY (0–9)
PRESS (+/–) TO SET
EXPRESS PROGRAMMING
PRESS (PROG.) TO END

- The clock must be set in order to access the VCR Plus+ screen. If you haven't set the clock, the Main Menu screen appears after an error message is displayed.
Refer to page 8 for the Plug & Play procedure or page 11 for the clock setting procedure.

3 ENTER PLUSCODE NUMBER

Press the appropriate **NUMBER** keys to enter the PlusCode number printed in the TV listings for the TV program you wish to record and press **OK**.
If the Guide Channel Set screen appears, go to step 4.
If the VCR Plus+ Program screen appears, go to step 5.



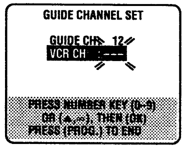
VCR PLUS+
123

PRESS NUMBER KEY (0–9)
THEN (OK)
PRESS (PROG.) TO END

- To make corrections, press **CANCEL** and input the correct PlusCode number.

4 INPUT RECEIVING CHANNEL NUMBER

The Guide Channel Number, which is assigned to the TV or cable station for the PlusCode number that you entered in step **3**, will appear automatically on the Guide Channel Set screen. Input the number of the channel on which the broadcast for the PlusCode number is received on the VCR or cable box using the **NUMBER** keys, **CH** ▲∞ or **TIME SCAN** △▽, then press **OK**.

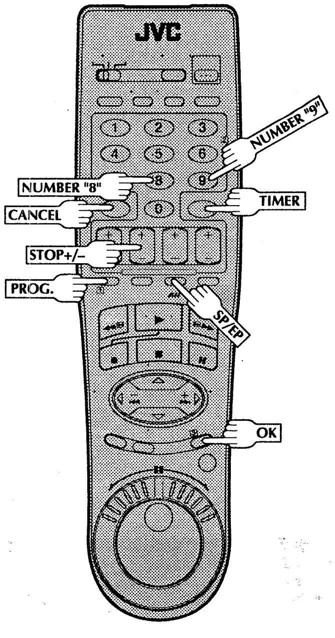


GUIDE CHANNEL SET

GUIDE CH: 12
VCR CH :– –

PRESS NUMBER KEY (0–9)
OR (▲,∞), THEN (OK)
PRESS (PROG.) TO END

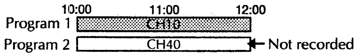
- The Guide Channel Set screen appears only when you input the PlusCode number of a station for which the Guide Channel number has not previously been set.
- If you receive your channels with a cable box and if you have properly set your Controller, "CABLE CH" appears in place of "VCR CH". If not, refer to pages 16 – 18.



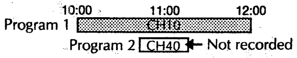
ATTENTION

If there is a conflict in the timer schedule and one program overlaps with another, only the parts shown below in gray will be recorded.

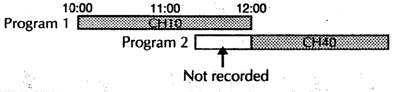
Pattern 1: *The program with the lower program number will be recorded.*



Pattern 2: *The program that is broadcast earlier will be recorded.*

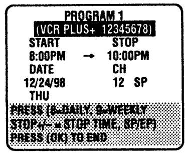


Pattern 3: *The program that is broadcast earlier will be recorded, followed by the remaining portion of the other program.*



5 CHECK PROGRAM DATA

The PlusCode number you entered and the matching Timer-Recording information is displayed on the Program screen. Check to make sure it's accurate.



PROGRAM 1
(VCR PLUS+ 12345678)
START STOP
8:00PM → 10:00PM
DATE CH
12/24/98 12 SP
THU

PRESS (8=DAILY, 9=WEEKLY
STOP+/– = STOP TIME, SP/EP)
PRESS (OK) TO END

- To change the stop time, press **STOP +/–**.
- To timer-record daily or weekly serials, press **DAILY** (**NUMBER** "8") or **WEEKLY** (**NUMBER** "9"). "DAILY" or "WEEKLY" appears on the Program screen. Pressing the button again makes each corresponding display disappear.
- If you made a mistake, press **CANCEL** to access the VCR Plus+ screen again and input the correct PlusCode number.
- If the PlusCode number you inputted is incorrect, "ERROR" may appear on the screen to advise you of the error. This happens when the PlusCode number is for a program which has already passed. "ERROR" is displayed for about 5 seconds and the VCR Plus+ screen reappears.

6 SET TAPE SPEED

Press **SP/EP**.

7 RETURN TO NORMAL SCREEN

Press **PROG.** or **OK**. "PROGRAM COMPLETED" appears on the screen for about 5 seconds, then normal screen appears.

8 ENGAGE TIMER MODE

Press **TIMER**. The VCR turns off automatically and "⊙" is displayed on the display panel.

IMPORTANT

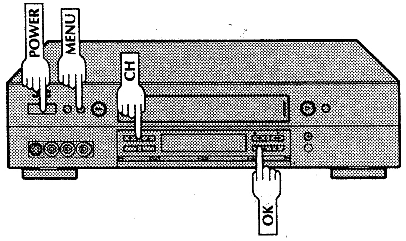
If you have moved to a different area or if a broadcasting station's channel number has been changed, the wrong VCR or CABLE CH number will be displayed on the VCR Plus+ Program screen in step **5**. When this happens, set the correct the Guide Channel number for that station. (☞ pg. 48, "VCR Plus+ Setup")

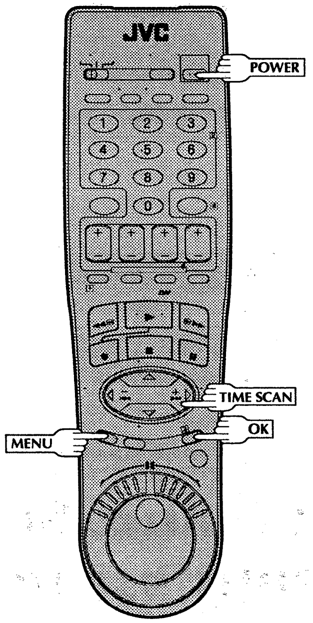
NOTES:

- *To disengage the timer before recording starts, press* ***TIMER*** *again. Pressing once more re-engages it.*
- *In case of a power failure after programming, the VCR's memory backup keeps your selections for approximately 10 minutes.*
- *When timer-recording cable channels received through a Cable Box, be sure to keep the Cable Box set to ON.*

VCR Plus+ Setup

Turn on the TV and select the VCR channel 3 or 4 (or AV mode).





IMPORTANT

If you have moved to a different area or if a broadcasting station's channel number has been changed, the wrong VCR or CABLE CH number will be displayed on the VCR Plus+ Program screen (☞ step 5 on page 47). When this happens, perform the following steps to set the correct the Guide Channel number for that station.

To ensure that VCR Plus+Timer Recording operates correctly it is necessary to set the VCR Plus+ "Guide Channel Set " for each station. Please read the following information carefully.

VCR Plus+ Guide Channel Matching

VCR Plus+ assigns a VCR Plus+ "Guide Channel" to broadcast and cable TV channels. These Guide Channel numbers are also called the VCR Plus+ Channel Codes. Most TV listings have a section, usually a chart, indicating the "Guide Channel" numbers assigned to each station. For accurate VCR Plus+ Programming the VCR Plus+ Guide Channel number for each station should match the channel number on which it is received in your area.

NOTES:

- *In many instances the VCR Plus+ Guide Channel numbers for cable and broadcast TV stations* ***DO NOT*** *match the channel number on which it is received by your VCR or cable box. Check your TV listing, or contact your cable supplier for details.*
- *Many broadcast TV stations can be viewed on cable. Check your TV listing, or contact your cable supplier for details.*

1 TURN ON THE VCR

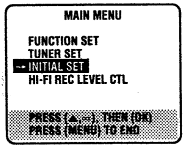
Press **POWER**.

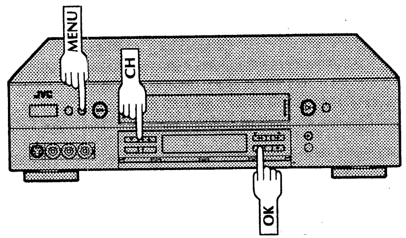
2 ACCESS MAIN MENU SCREEN

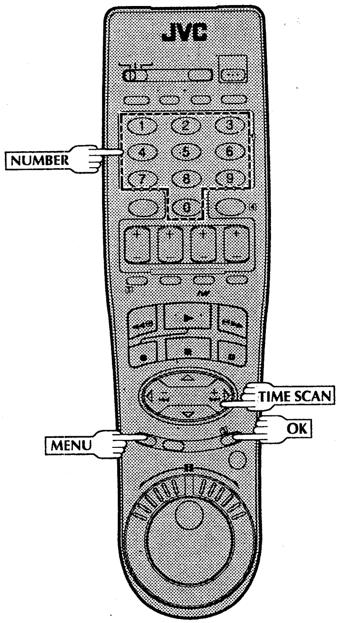
Press **MENU**.

3 ACCESS INITIAL SET SCREEN

Press **CH▲∞** or **TIME SCAN** △▽ to move the highlight bar (arrow) to "INITIAL SET", then press **OK** or **TIME SCAN** ▷.

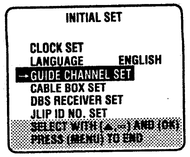

MAIN MENU
FUNCTION SET
TUNER SET
→ INITIAL SET
HI-FI REC LEVEL CTL
PRESS (▲,∞), THEN (OK)
PRESS (MENU) TO END





4 ACCESS GUIDE CHANNEL SET SCREEN

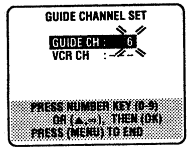
Press **CH▲∞** or **TIME SCAN** △▽ to move the highlight bar (arrow) to "GUIDE CHANNEL SET", then press **OK** or **TIME SCAN** ▷.


INITIAL SET
CLOCK SET
LANGUAGE ENGLISH
→ GUIDE CHANNEL SET
CABLE BOX SET
DBS RECEIVER SET
JLIP ID NO. SET
SELECT WITH (▲,∞) AND (OK)
PRESS (MENU) TO END

5 INPUT GUIDE CHANNEL NUMBER

Press **CH▲∞**, **TIME SCAN** △▽ or the appropriate **NUMBER** keys to input the VCR Plus+ Guide Channel number as shown in the TV listing. Then press **OK** or **TIME SCAN** ▷.

(Ex.) When inputting the Guide Channel number 6 for WNJU(Ind.)

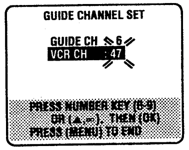

GUIDE CHANNEL SET
GUIDE CH : 6
VCR CH : --
PRESS NUMBER KEY (0-9)
OR (▲,∞), THEN (OK)
PRESS (MENU) TO END

- If you receive your channels with a cable box and if you have properly set your Controller, "CABLE CH" appears in place of "VCR CH". If not, refer to pages 16 – 18 and re-perform the procedure.

6 INPUT RECEIVING CHANNEL NUMBER

Press **CH▲∞**, **TIME SCAN** △▽ or the appropriate **NUMBER** keys to input the number of the channel on which the Guide Channel's broadcasts are received. Then press **OK** or **TIME SCAN** ▷.

(Ex.) If WNJU(Ind.) is received on channel 47


GUIDE CHANNEL SET
GUIDE CH : 6
VCR CH : 47
PRESS NUMBER KEY (0-9)
OR (▲,∞), THEN (OK)
PRESS (MENU) TO END

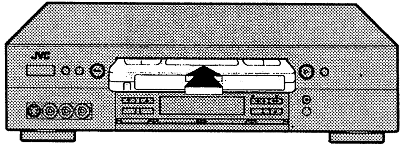
- Repeat steps **5** and **6** for each instance.

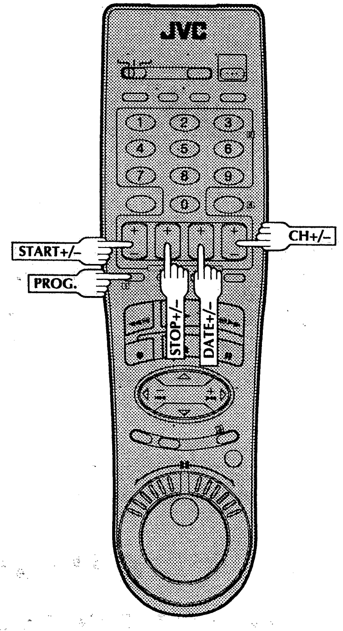
7 RETURN TO NORMAL SCREEN

Press **MENU**.

Express Timer Programming

Turn on the TV and select the VCR channel 3 or 4 (or AV mode).





You can directly program the VCR's timer to record up to 8 shows, as far as a year in advance. Remember, the clock must be set before you can program the timer (☞ pg. 8 or 11).

1 LOAD A CASSETTE

Make sure the record safety tab is intact. If not, cover the hole with adhesive tape, then load it into the VCR.

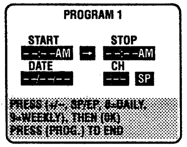
- The VCR comes on, and the counter is reset, automatically.

2 ACCESS VCR PLUS+ SCREEN

Press **PROG.**

3 ACCESS PROGRAM SCREEN

Press **START +/–**. (If you're just starting out, "PROGRAM 1" appears.)

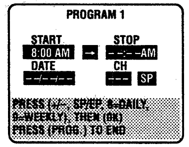


PROGRAM 1
START --:--AM → STOP --:--AM
DATE --/--/-- CH --- SP
PRESS (+/–, SP/EP, 8=DAILY, 9=WEEKLY), THEN (OK)
PRESS (PROG.) TO END

4 SET PROGRAM START TIME

Press **START +/–** to enter the time you want recording to start.

- Press and hold **START +/–** to move in 30-minute increments, or press and release repeatedly to move 1 minute at a time.



PROGRAM 1
START 8:00 AM → STOP --:--AM
DATE --/--/-- CH --- SP
PRESS (+/–, SP/EP, 8=DAILY, 9=WEEKLY), THEN (OK)
PRESS (PROG.) TO END

5 SET PROGRAM STOP TIME

Press **STOP +/–** to enter the time you want recording to stop.

- Press and hold **STOP +/–** to move in 30-minute increments, or press and release repeatedly to move 1 minute at a time.

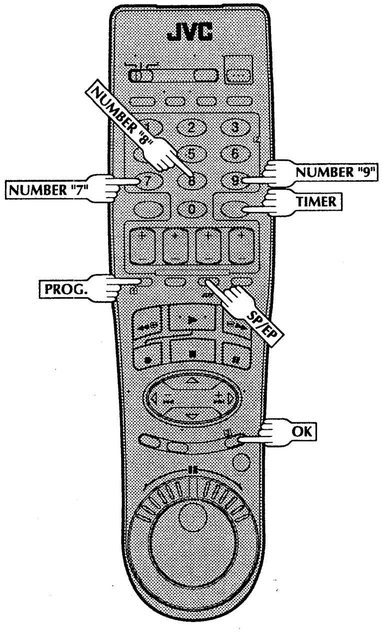
6 SET PROGRAM DATE

Press **DATE +/–**. (The current date is displayed on screen. The date you enter appears in its place.)

7 SET CHANNEL NUMBER

Press **CH +/–**.

- If you are using a DBS receiver, see "ATTENTION FOR DBS RECEIVER USERS" on next page.
- Holding down **CH +/–** rapidly scans through the channels.



8 SET TAPE SPEED

Press **SP/EP** to set the tape speed.

9 RETURN TO NORMAL SCREEN

Press **PROG.** or **OK**. "PROGRAM COMPLETED" appears on the screen for about 5 seconds, then normal screen appears.

10 ENGAGE TIMER MODE

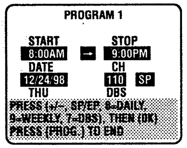
Press **TIMER**. The VCR turns off automatically and "⊙" is displayed on the display panel.

To Timer-Record Weekly Or Daily Serials . . .
. . . anytime during steps **3** through **9**, press **WEEKLY** (**NUMBER** key "9") for weekly serials or **DAILY** (**NUMBER** key "8") for daily serials (Monday–Friday). Either "WEEKLY" or "DAILY" appears on the screen. Pressing the button again makes the corresponding indication disappear.

NOTES:

- *To disengage the timer before recording starts, press **TIMER** again. Pressing once more re-engages it.*
- *In case of a power failure after programming, the VCR's memory backup keeps your selections for approximately 10 minutes.*
- *Programs that start after midnight must have the next day's date.*
- *After timer recording is completed, the VCR's power goes off automatically.*
- *You can program the timer while a regular recording is in progress; the on-screen menu will not be recorded.*
- *If the end of tape is reached during timer recording, the cassette is automatically ejected.*
- *When timer-recording cable or satellite channels through an external tuner, be sure to keep the cable box or satellite receiver's power ON.*

ATTENTION FOR DBS RECEIVER USERS



PROGRAM 1
START 8:00AM → STOP 9:00PM
DATE 12/24/98 THU CH 110 DBS SP
PRESS (+/–, SP/EP, 8=DAILY, 9=WEEKLY, 7=DBS), THEN (OK)
PRESS (PROG.) TO END

If you are using a DBS receiver (unless "DBS RECEIVER SET" is set to "OFF" ☞ pg. 20), the BAND indication (TV or CATV or DBS) appears under the channel number display. If the channel number that has been entered requires that the band be set, "7=DBS" is displayed on the screen. Press the **NUMBER** key "7" to select the desired band.

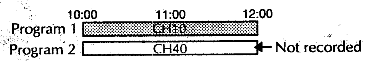
a– TV : To timer-record a regular TV program received on the VCR.
b– CATV : To timer-record a cable TV program received on the VCR, or through a cable box (unless "CABLE BOX SET" is set to "OFF" ☞ pg.17).
c– DBS : To timer-record a satellite program received through a DBS receiver.

- If "BAND" is set to "TV" at the Tuner Set screen (☞ pg.14) and "CABLE BOX SET" is set to "OFF" at the Cable Box Set screen (☞pg. 17), CATV will not be displayed on the Program screen; If "BAND" is set to "CATV" or "CABLE BOX SET" is set to "ON", TV will not be displayed.

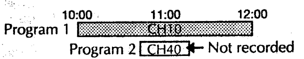
ATTENTION

If there is a conflict in the timer schedule and one program overlaps with another, only the parts shown below in gray will be recorded.

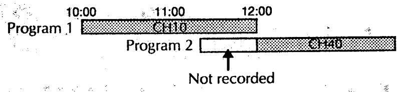
Pattern 1: *The program with the lower program number will be recorded.*

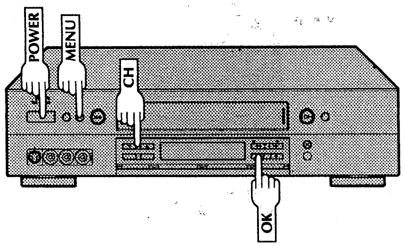


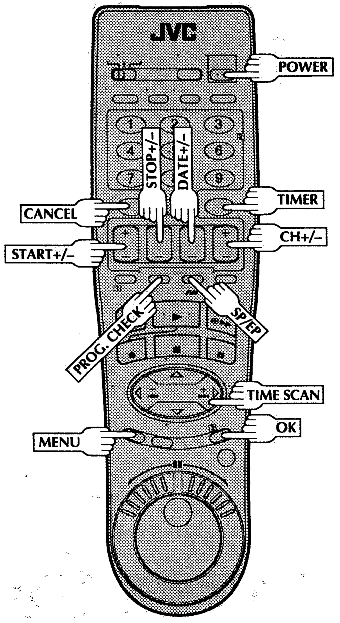
Pattern 2: *The program that is broadcast earlier will be recorded.*



Pattern 3: *The program that is broadcast earlier will be recorded, followed by the remaining portion of the other program.*







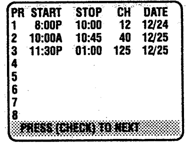
Check, Cancel And Revise Programs

1 DISENGAGE TIMER

Press **TIMER**, then press **POWER**.

2 ACCESS PROGRAM CHECK SCREEN

Press **PROG. CHECK.**



```
PR START   STOP   CH  DATE
1   8:00P  10:00   12 12/24
2  10:00A  10:45   40 12/25
3  11:30P  01:00  125 12/25
4
5
6
7
8
PRESS {CHECK} TO NEXT
```

3 ACCESS PROGRAM SCREEN

Press **PROG. CHECK** again to check more information. Each time you press **PROG. CHECK**, the next program's information appears.

To Cancel Or Revise A Program...

4 CANCEL OR REVISE A PROGRAM

To cancel a program, press **CANCEL** at the appropriate program screen.
To revise a program, press the appropriate button: **START+/–, STOP+/–, DATE+/–, CH+/–, SP/EP.**

5 RETURN TO NORMAL SCREEN

Press **PROG. CHECK** as many times as necessary. If there are still programs remaining, go to step **6.**

6 RE-ENGAGE TIMER

Press **TIMER.**

Auto SP→EP Timer

If, when recording in SP mode, there is not enough tape to record the entire program, the VCR automatically switches to EP mode to allow complete recording. This feature is especially handy when recording a program of more than 2 hours in length.

For Example . . .

Recording a program of 140 minutes in length onto a 120-minute tape

Approximately 110 minutes	Approximately 30 minutes
SP mode	EP mode

Total 140 minutes

Make sure you set "AUTO SP→EP TIMER" to "ON" at the Function screen before the timer recording starts.

1 ACCESS MAIN MENU SCREEN

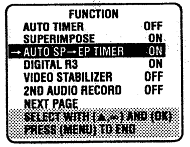
Press **MENU.**

2 ACCESS FUNCTION SET SCREEN

Move the highlight bar (arrow) to "FUNCTION SET" by pressing **CH ▲∞** or **TIME SCAN △▽**, then press **OK** or **TIME SCAN ▷**.

3 SELECT AUTO SP→EP TIMER SET MODE

Move the highlight bar (arrow) to "AUTO SP→EP TIMER" by pressing **CH ▲∞** or **TIME SCAN △▽**, then press **OK** or **TIME SCAN ▷** to set to "ON".



```
FUNCTION
AUTO TIMER            OFF
SUPERIMPOSE            ON
→ AUTO SP→EP TIMER     ON
DIGITAL R3             ON
VIDEO STABILIZER      OFF
2ND AUDIO RECORD      OFF
NEXT PAGE
SELECT WITH {▲,∞} AND {OK}
PRESS {MENU} TO END
```

4 RETURN TO NORMAL SCREEN

Press **MENU.**

NOTES:

- *If you have programmed the VCR to timer-record 2 or more programs, the second program and those thereafter may not fit on the tape if you set the Auto SP→EP Timer mode to "ON". In this case, make sure the mode is not engaged, then set the tape speed manually during timer programming.*
- *In order to ensure that the recording fits on the tape, this feature may leave a slight non-recorded section at the end of the tape.*
- *There may be some noise at the point on the tape where the VCR switches from SP to EP mode.*
- *The Auto SP→EP Timer feature is not available during ITR (Instant Timer Recording), and the feature will work with the following tapes: T(ST)-30, T(ST)-60, T(ST)-90, and T(ST)-120.*

Auto Timer

When the Auto Timer is set to ON the timer is automatically engaged when the VCR's power is turned off. It is automatically disengaged when the VCR is powered back on.

1 ACCESS MAIN MENU SCREEN

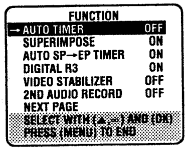
Press **MENU.**

2 ACCESS FUNCTION SET SCREEN

Move the highlight bar (arrow) to "FUNCTION SET" by pressing **CH▲∞** or **TIME SCAN △▽**, then press **OK** or **TIME SCAN ▷**.

3 SELECT AUTO TIMER SET MODE

Move the highlight bar (arrow) to "AUTO TIMER" by pressing **CH▲∞** or **TIME SCAN △▽**, then press **OK** or **TIME SCAN ▷** to set to "ON" or "OFF".



```
FUNCTION
→ AUTO TIMER          OFF
SUPERIMPOSE            ON
AUTO SP→EP TIMER       ON
DIGITAL R3             ON
VIDEO STABILIZER      OFF
2ND AUDIO RECORD      OFF
NEXT PAGE
SELECT WITH {▲,∞} AND {OK}
PRESS {MENU} TO END
```

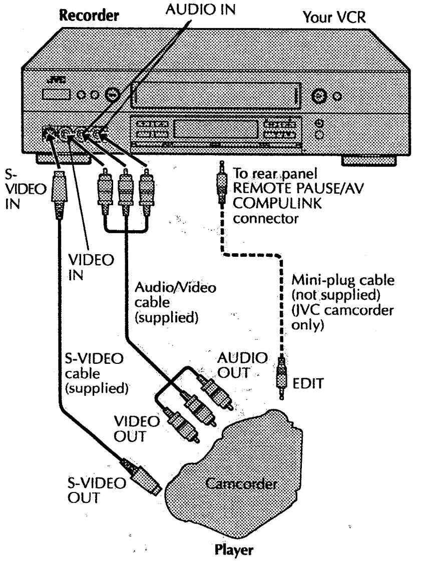
4 RETURN TO NORMAL SCREEN

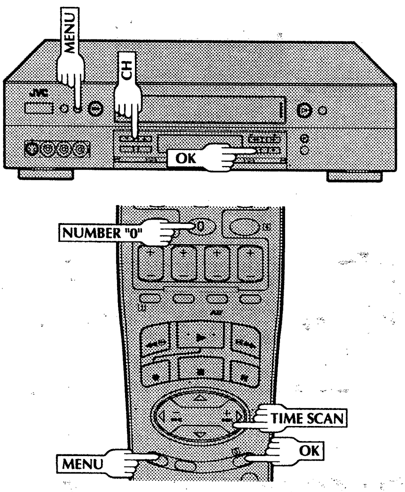
Press **MENU.**

NOTE:

*For safety, when AUTO TIMER is set to "OFF", all other VCR functions are disabled while the Timer mode is engaged. To disengage the timer, press **TIMER**.*

Edit From A Camcorder


Recorder
AUDIO IN
Your VCR
S-VIDEO IN
VIDEO IN
To rear panel REMOTE PAUSE/AV COMPULINK connector
Audio/Video cable (supplied)
Mini-plug cable (not supplied) (JVC camcorder only)
S-VIDEO cable (supplied)
AUDIO OUT
EDIT
VIDEO OUT
S-VIDEO OUT
Camcorder
Player



You can use a camcorder as the player and your VCR as the recorder.

1

MAKE CONNECTIONS

Connect an AV cable between the camcorder's VIDEO OUT and AUDIO OUT connectors and your VCR's VIDEO IN and AUDIO IN connectors.

- If connecting a camcorder with an S-VIDEO output connector, it is recommended to use the S-VIDEO connection to minimize picture degradation while editing.
- When a Master Edit Control-equipped JVC camcorder is used, the camcorder is capable of controlling your VCR. The mini-plug cable is a mono 3.5 mm mini-plug to mono 3.5 mm mini-plug connector.
- If connecting to a camcorder with a monaural output, connect the audio output connector on the camcorder to AUDIO IN L of the VCR.

2

LOAD A CASSETTE

Insert the cassette to be recorded on into the recorder.

3

SET RECORDER'S INPUT MODE

Set to "AUX". Press the **NUMBER** key "0" and/or **CH** to select depending on the connector being used – "L-1" for the rear panel input connectors, or "F-1" for the front panel input connectors.

4

ACCESS MAIN MENU SCREEN

Press **MENU**.

5

ACCESS FUNCTION SET SCREEN

Press **CH ▲∞** or **TIME SCAN △▽** to move the highlight bar (arrow) to "FUNCTION SET", then press **OK** or **TIME SCAN ▷**.

6

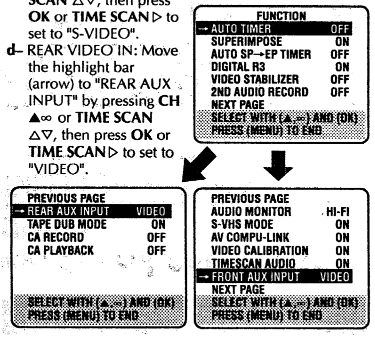
SELECT AUX INPUT SET MODE

a– FRONT S-VIDEO IN : Move the highlight bar (arrow) to "FRONT AUX INPUT" by pressing **CH ▲∞** or **TIME SCAN △▽**, then press **OK** or **TIME SCAN ▷** to set to "S-VIDEO".

b– FRONT VIDEO IN: Move the highlight bar (arrow) to "FRONT AUX INPUT" by pressing **CH ▲∞** or **TIME SCAN △▽**, then press **OK** or **TIME SCAN ▷** to set to "VIDEO".

c– REAR S-VIDEO IN: Move the highlight bar (arrow) to "REAR AUX INPUT" by pressing **CH ▲∞** or **TIME SCAN △▽**, then press **OK** or **TIME SCAN ▷** to set to "S-VIDEO".

d– REAR VIDEO IN: Move the highlight bar (arrow) to "REAR AUX INPUT" by pressing **CH ▲∞** or **TIME SCAN △▽**, then press **OK** or **TIME SCAN ▷** to set to "VIDEO".



```
            FUNCTION
→ AUTO TIMER              OFF
  SUPERIMPOSE              ON
  AUTO SP→EP TIMER        OFF
  DIGITAL R3               ON
  VIDEO STABILIZER        OFF
  2ND AUDIO RECORD        OFF
  NEXT PAGE
  SELECT WITH (▲,∞) AND (OK)
  PRESS (MENU) TO END
```

```
  PREVIOUS PAGE
→ REAR AUX INPUT        VIDEO
  TAPE DUB MODE            ON
  CA RECORD               OFF
  CA PLAYBACK             OFF

  SELECT WITH (▲,∞) AND (OK)
  PRESS (MENU) TO END
```

```
  PREVIOUS PAGE
  AUDIO MONITOR         HI-FI
  S-VHS MODE               ON
  AV COMPU-LINK            ON
  VIDEO CALIBRATION        ON
  TIMESCAN AUDIO           ON
→ FRONT AUX INPUT       VIDEO
  NEXT PAGE
  SELECT WITH (▲,∞) AND (OK)
  PRESS (MENU) TO END
```

7

RETURN TO NORMAL SCREEN

Press **MENU**.

*If you are using a JVC Master Edit Control-equipped camcorder — go to step **8***

*If you are not using a JVC Master Edit Control-equipped camcorder — go to step **12**.*

8

ACCESS MAIN MENU SCREEN

Press **MENU**.

9

ACCESS FUNCTION SET SCREEN

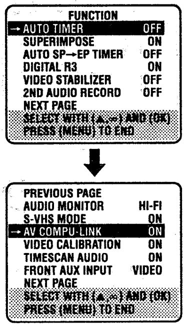
Press **CH ▲∞** or **TIME SCAN △▽** to move the highlight bar (arrow) to "FUNCTION SET", then press **OK** or **TIME SCAN ▷**.

10

ENABLE REMOTE PAUSE FUNCTION

Press **CH ▲∞** or **TIME SCAN △▽** to move the highlight bar (arrow) to "AV COMPU-LINK", then press **OK** or **TIME SCAN ▷** to set to "OFF".

- The REMOTE PAUSE/AV COMPU-LINK connector works as the AV Compulink Playback connector when "AV COMPU-LINK" is set to "ON" (☞ pg. 31), and works as the Remote Pause connector when "AV COMPU-LINK" is set to "OFF".



```
            FUNCTION
→ AUTO TIMER              OFF
  SUPERIMPOSE              ON
  AUTO SP→EP TIMER        OFF
  DIGITAL R3               ON
  VIDEO STABILIZER        OFF
  2ND AUDIO RECORD        OFF
  NEXT PAGE
  SELECT WITH (▲,∞) AND (OK)
  PRESS (MENU) TO END
```

```
  PREVIOUS PAGE
  AUDIO MONITOR         HI-FI
  S-VHS MODE               ON
→ AV COMPU-LINK            ON
  VIDEO CALIBRATION        ON
  TIMESCAN AUDIO           ON
  FRONT AUX INPUT       VIDEO
  NEXT PAGE
  SELECT WITH (▲,∞) AND (OK)
  PRESS (MENU) TO END
```

11

RETURN TO NORMAL SCREEN

Press **MENU**.

12

ACCESS MAIN MENU SCREEN

Press **MENU**.

13

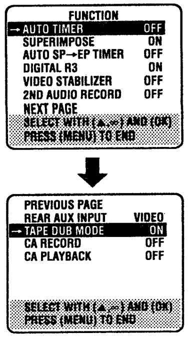
ACCESS FUNCTION SET SCREEN

Press **CH ▲∞** or **TIME SCAN △▽** to move the highlight bar (arrow) to "FUNCTION SET", then press **OK** or **TIME SCAN ▷**.

14

SELECT TAPE DUB MODE

Move the highlight bar (arrow) to "TAPE DUB MODE" by pressing **CH ▲∞** or **TIME SCAN △▽**, then press **OK** or **TIME SCAN ▷** to set to "ON".



```
            FUNCTION
→ AUTO TIMER              OFF
  SUPERIMPOSE              ON
  AUTO SP→EP TIMER        OFF
  DIGITAL R3               ON
  VIDEO STABILIZER        OFF
  2ND AUDIO RECORD        OFF
  NEXT PAGE
  SELECT WITH (▲,∞) AND (OK)
  PRESS (MENU) TO END
```

```
  PREVIOUS PAGE
  REAR AUX INPUT        VIDEO
→ TAPE DUB MODE            ON
  CA RECORD               OFF
  CA PLAYBACK             OFF

  SELECT WITH (▲,∞) AND (OK)
  PRESS (MENU) TO END
```

15

RETURN TO NORMAL SCREEN

Press **MENU**.

16

START PLAYER

Set the camcorder to its play mode.

NOTE:

If the camcorder is equipped with a superimpose/OSD disable feature then set its superimpose or display feature to OFF before pressing play.

17

START RECORDER

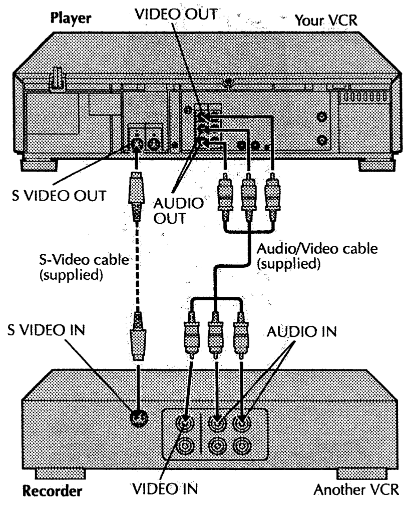
Set your VCR to its record mode.

- If you are using a Master Edit Control-equipped JVC camcorder, it can put the recorder automatically into Record mode. (Refer to camcorder's instruction manual.)

NOTES:

- *Be sure to set "TAPE DUB MODE" back to "OFF" when you finish editing.*
- *When "TAPE DUB MODE" is set to "ON" Active Video Calibration is deactivated in order to provide better picture quality edits.*
- *If you use an auxiliary input to connect a cable box or DBS receiver make sure that the correct input ("L-1", "F-1" or "S-VIDEO") is selected after you have finished editing (☞ step **3**, **6**, pg. 54).*

Edit To Or From Another VCR



Advantages Of S-VHS Editing

S-VHS allows you make high resolution video recordings when dubbing from one VCR to another.
You can edit from VHS to S-VHS, from S-VHS to VHS, or from S-VHS to S-VHS.

- From VHS to S-VHS: Record VHS playback signals in the S-VHS mode. Although the picture quality is inherently limited by the orignal VHS source material, the edited tape has better picture quality than those made by VHS-to-VHS editing.
- From S-VHS to VHS: Because the picture quality of the source material is very high, the edited tape has better picture quality than those made by VHS-to-VHS editing.
- From S-VHS to S-VHS: A high resolution copy is made of a high resolution original S-VHS tape with minimal picture degradation. This is the preferred method of video dubbing.

You can use your VCR as the player or the recorder.

1

MAKE CONNECTIONS

Connect an AV cable between the player's VIDEO OUT and AUDIO OUT connectors and the recorder's VIDEO IN and AUDIO IN connectors.

- If using another VCR with an S-VIDEO input or output connector, it is recommended to use the S-VIDEO connection to minimize picture degradation while editing.
- When using your VCR as the recorder and a monaural VCR as the player, connect the player's AUDIO OUT connector to the AUDIO IN L connector on the recorder.

2

LOAD CASSETTES

Insert the playback cassette into the player and the cassette to be recorded on into the recorder.

3

SET RECORDER'S INPUT MODE

Set to "AUX". With this VCR, press the **NUMBER** key "0" and/or **CH** to select depending on the connector being used – "L-1" for the rear AUDIO/VIDEO IN connector, or "F-1" for the front AUDIO/VIDEO IN connector.

NOTE:

*If you use your VCR as the recorder and have connected another VCR to your VCR's S-VIDEO IN connector, you need to set "REAR AUX INPUT" to "S-VIDEO" at the Function screen. Follow steps **4 – 6** from the "Edit From A Camcorder" section (☞ pg. 54 – 55).*

4

ENGAGE TAPE DUBBING MODE

Follow steps **12 – 14** from the "Edit From A Camcorder" section (☞ pg. 55).

5

START PLAYER

Set to its play mode.

NOTE:

*If the player is equipped with a superimpose/OSD disable feature then set "SUPERIMPOSE" to OFF before pressing **PLAY** (☞ pg. 29).*

6

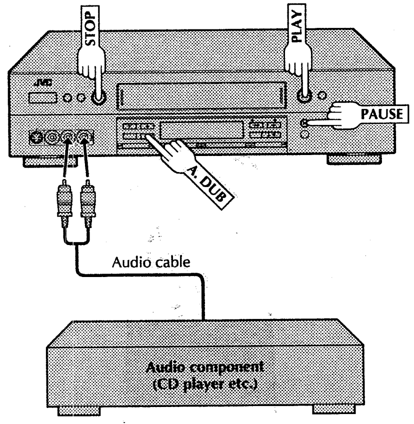
START RECORDER

Set to its record mode.

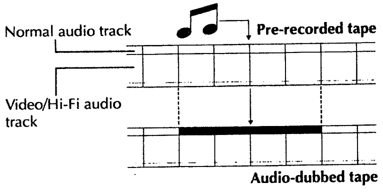
NOTES:

- *Be sure to set "TAPE DUB MODE" back to "OFF" when you finish editing.*
- *When "TAPE DUB MODE" is set to "ON" Active Video Calibration is deactivated in order to provide better picture quality edits.*
- *If you use an auxiliary input to connect a cable box or DBS receiver make sure that the correct input ("L-1", "F-1" or "S-VIDEO") is selected after you have finished editing (☞ step **6**, page 54).*

Audio Dubbing



Audio dubbing replaces the normal audio sound of a previously recorded tape with a new soundtrack. Use your VCR as the recorder.



1

MAKE CONNECTIONS

Connect an audio component to the AUDIO IN L + R connectors on the VCR's front panel. *When connecting monaural equipment, use only the VCR's AUDIO IN L connector.

2

SET INPUT MODE

Press the remote control's **NUMBER** key "0" and **CH** so that "F-1" appears in place of a channel number.

- Be sure to select "FRONT S-VIDEO" or "FRONT VIDEO" at the AUX Input Screen. (To select the correct AUX input connector, follow steps **4 – 6**, **15** from the "Edit From A Camcorder" section, ☞ pg. 54.)

3

LOCATE START POINT

Press **PLAY** to start playback of the tape in your VCR, and press **PAUSE** when you find the point where you want to start dubbing.

4

ENGAGE AUDIO DUBBING

Press **A. DUB**.

- Your VCR enters the Audio Dubbing Pause mode. (○ blinks, ▷ and ▦ light up on the front display panel.)

5

START DUBBING

Engage the audio component's Play mode, then press **PLAY** to start the tape in your VCR. Audio dubbing begins at this point.

- ○ blinks and ▷ is displayed on the front display panel.
- To stop dubbing temporarily, press **PAUSE**. Press **PLAY** to resume dubbing.

6

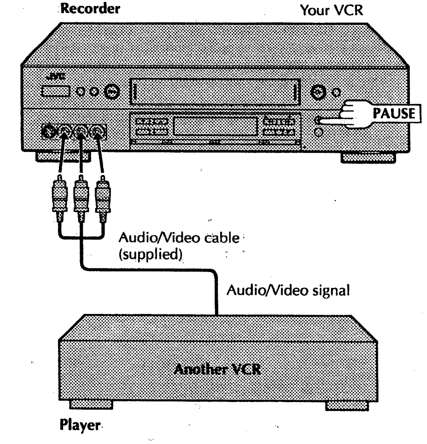
END AUDIO DUBBING

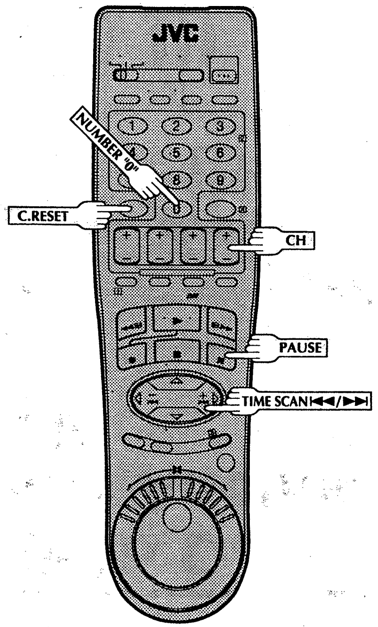
Press **STOP** to stop the tape in your VCR, and engage the audio component's Stop mode.

NOTES:

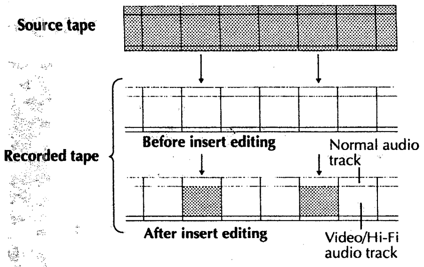
- *When monitoring the sound during Audio Dubbing, the normal soundtrack is automatically selected. If you wish to hear the Hi-Fi or mixed sound (Hi-Fi + Normal soundtracks), refer to the "Select The Soundtrack" section (☞ pg. 30) and select the soundtrack you wish to hear.*
- *Audio dubbing stops automatically when the counter reaches "0:00:00", and the VCR enters the Play mode. Check the counter reading before dubbing.*
- *Audio dubbing is also possible using the rear AUDIO IN connectors. When using these connectors, be sure to select "REAR S-VIDEO" or "REAR VIDEO" at the Aux Input screen. To select the correct Aux Input connector, follow steps **4 – 6**, **15** from the "Edit From A Camcorder" section ☞ pg. 54.*
- *Audio dubbing cannot be performed on a cassette that has had its record safety tab removed.*
- *When playing back an audio-dubbed tape, refer to the "Select The Soundtrack" section (☞ pg. 30) to select the soundtrack you wish to hear.*
- *Picture may be distorted during Audio Dubbing Pause.*
- *It may be unlawful to record or play back copyrighted material without the consent of the copyright owner.*

Insert Editing





Insert editing replaces part of the recorded scene with new material. Both the picture and Hi-Fi audio soundtrack are replaced with new ones, while the normal audio soundtrack remains unchanged. If you wish to change the normal audio track as well, use the audio dubbing function simultaneously. Use your VCR as the recorder.



1 MAKE CONNECTIONS

Connect the player's VIDEO OUT and AUDIO OUT connectors to your VCR's VIDEO IN and AUDIO IN on the front panel.

2 SET INPUT MODE

Press the **NUMBER** key "0" and **CH** so that "F-1" appears in place of a channel number.

- Be sure to select the correct AUX input connector at the Aux Input screen. (To select the correct AUX input connector, follow steps **4 – 6, 15** from the "Edit From A Camcorder" section ☞ pg. 54).

3 LOCATE END POINT

Load the recording cassette into your VCR, and play it back to determine the edit-out point (the end of the segment to be replaced) using **TIME SCAN ◀◀ ▶▶** and **PAUSE**.

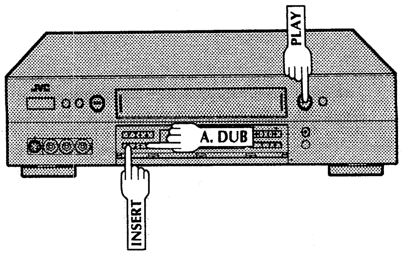
4 RESET THE COUNTER

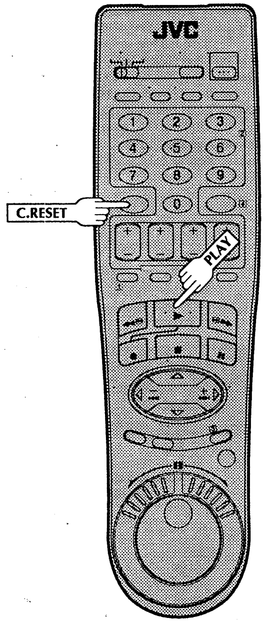
Press **C.RESET** to change the counter display to "0:00:00".

5 LOCATE START POINT

Determine the edit-in point (the beginning of the segment to be replaced) using **TIME SCAN ◀◀ ▶▶** and **PAUSE**.

- Be sure to engage the Still mode at the edit-in point.





6 ENGAGE INSERT EDITING

Press **INSERT**.

- Your VCR enters the Insert-Pause mode. (○, ▷ and ▥ light up on the front display panel.)
- The TV screen changes from the still picture to the input source you are going to record.

7 START EDITING

Load the source cassette and play back the segment that is to be inserted. When you reach the start of the section of the source tape that you wish to insert, press **PLAY** to start the tape in your VCR; Insert Editing begins at this point.

- ▷ and ○ are displayed on the front display panel.

8 END INSERT EDITING

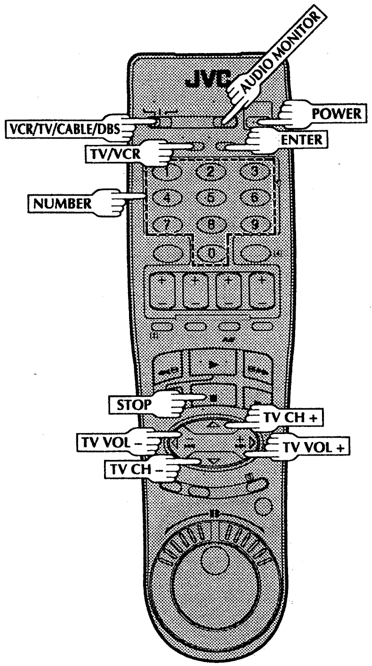
At counter "0:00:00", Insert Editing will stop automatically while the tape continues running in the Play mode. if you wish to stop Insert Editing before the specified edit-out point, press **C.RESET**.

FOR AV INSERT EDITING

If you want to replace the picture, Hi-Fi audio soundtrack and normal audio soundtrack all at the same time...
In step **6** above, after you press **INSERT**, press **A. DUB.** also.
(○ and ▷ blink and ▥ lights up on the display panel.)

NOTES:

- *Insert editing is not possible with cassettes whose safety tab has been removed.*
- *In insert editing, the recording speed (SP/EP) is determined by the previous recording to be replaced. If the previous recording's speed changes within a single edit, the inserted picture will be distorted at the switching point.*
- *A small portion of the recording which precedes an insert edit may become erased.*
- *Insert Editing is also possible using the rear connectors. When using these connectors, be sure to select the correct AUX input connector at the Aux Input screen. To select the correct AUX input connector, follow steps **4 – 6, 15** from the "Edit From A Camcorder" section, ☞ pg 54.*



TV BRAND NAME	BRAND CODE
JVC	01
MAGNAVOX	02
MITSUBISHI	03
PANASONIC	04, 11
RCA	05
SHARP	06
SONY	07
TOSHIBA	08
ZENITH	09
HITACHI	10
SAMSUNG	12
SANYO	13
SEARS	13

TV Multi-Brand Remote Control

The VCR's remote control can control several functions on JVC remote control TVs and on the brands of remote control TVs listed below.

1

TURN ON THE TV

Turn the power on using the TV's remote control.

2

SET REMOTE CONTROL MODE

Set the **VCR/TV/CABLE/DBS** switch on the VCR's remote control to TV.

3

SET TV BRAND CODE

Refer to the chart below. While holding down **POWER** on the VCR's remote control, enter your TV's brand code using the **NUMBER** keys, then press **STOP**. Follow the example shown at bottom left.

- Once you have set the remote control to operate the TV, you don't have to repeat this step until you replace your remote control's batteries.
- PANASONIC has two codes. If the TV does not function with one code, try entering the other.

4

OPERATE TV

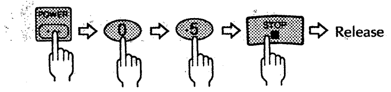
First, press **POWER** on the remote to see if the TV's power goes off as it should. If it does, try other operations.

- The **POWER**, **TV/VCR**, **TV CH +/–**, **TV VOL +/–**, **AUDIO MONITOR** (TV Muting) and **NUMBER** keys on the remote can all be used to operate the TV. *For some brands of TV, you must press **ENTER** after having pressed the **NUMBER** keys.
- To return the remote to VCR control, set the **VCR/TV/CABLE/DBS** switch to VCR.

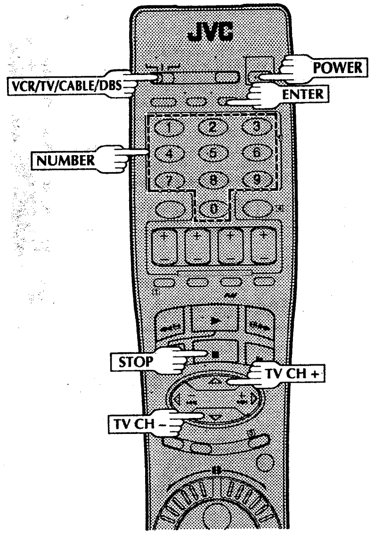
NOTE:

Depending on the type of TV, there may be cases where some or all functions cannot be operated using the remote control.

(Ex.) To set remote control to RCA 05:



Hold down Press in succession



CABLE BOX BRAND NAME	BRAND CODE
ARCHER	01, 05, 17
CABLETENNA	01, 17
CABLEVIEW	15, 16, 17, 21, 25
CITIZEN	15, 16, 17, 21, 25
CURTIS	02, 08
DIAMOND	01, 17
EASTERN	19
GC BRAND	15, 16, 17, 21, 25
GEMINI	15
GENERAL INSTRUMENTS	01, 04, 06, 11, 12, 15
HAMLIN	10, 18, 19, 23
JASCO	15
JERROLD	01, 04, 06, 11, 12, 15
NOVAVISION	02, 08
OAK	07, 20
PANASONIC	13, 14
PULSER	15, 16, 17, 21, 25
RCA	13, 14
REGAL	10, 18, 19, 23
REGENCY	19
REMBRANDT	01, 16, 17
SAMSUNG	05, 16, 24
SCIENTIFIC ATLANTA	02, 08
SIGMA	07, 20
SL MARX	05, 16, 17, 24, 25
SPRUCER	13, 14
STARGATE	05, 15, 16, 17, 21, 24, 25
TELEVIEW	05, 16, 24
TOCOM	01, 04, 16
UNIKA	01, 17
UNIVERSAL	16, 17, 25
VIDEOWAY	03, 09, 22
ZENITH	03, 09, 22

Cable Box Multi-Brand Remote Control

The VCR's remote control can control functions on the brands of cable boxes listed below. Some cable box brands have more than one code. If your cable box does not function with a specified code, try other codes.

1

TURN ON THE CABLE BOX

Turn the power on using the cable box's remote control.

2

SET REMOTE CONTROL MODE

Set the **VCR/TV/CABLE/DBS** switch on the VCR's remote control to CABLE/DBS.

3

ENTER CABLE BOX BRAND

While holding down **POWER** on the VCR's remote control, use the **NUMBER** keys to enter the cable box brand number from the chart at bottom left and then press **STOP**. Follow the example shown below.

- Once you have set the remote control to operate the cable box, you don't have to repeat this step until you replace the remote control's batteries.

4

OPERATE CABLE BOX

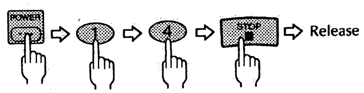
First, press **POWER** to see if the cable box's power goes off as it should. If it does, try other functions (**TV CH +/–** and the **NUMBER** keys can be used to operate the cable box).

- For some brands of cable box, you must press **ENTER** after having pressed the **NUMBER** keys.
- To return the remote to VCR control, set the **VCR/TV/CABLE/DBS** switch to VCR.

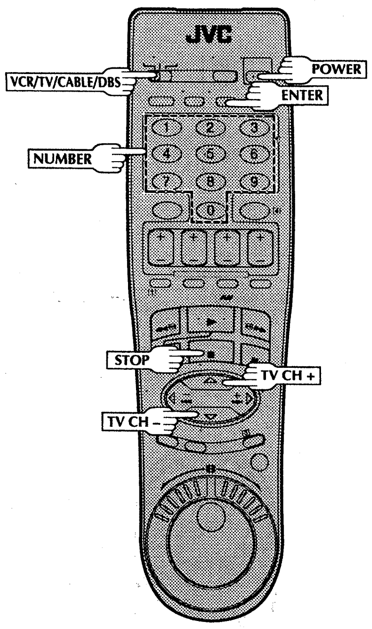
NOTES:

- *You must set the cable box brand for your remote control and the cable box brand for your Controller (☞ pg. 18) separately. The list of cable box brands that can be controlled by your remote control is different from the list of brands that can be controlled by your controller.*
- *Depending on the type of cable box, there may be cases where some or all functions cannot be operated using the remote control.*
- *It's not possible to set the remote control for both your cable box and a DBS receiver at the same time. You can only set the remote control to operate one of these units at a time.*

(Ex.) To set remote control to RCA 14:

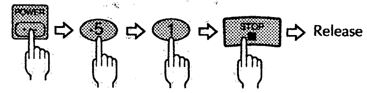


Hold down Press in succession



DBS BRAND NAME	BRAND CODE
JVC (DISH Network)	51
ECHOSTAR (DISH Network)	51
PRIMESTAR	50
SONY (DSS)	41
RCA (DSS)	40

(Ex.) To set remote control to JVC 51:



DBS Receiver Multi-Brand Remote Control

The VCR's remote control can control functions on the brands of DBS (Direct Broadcast Satellite) receivers listed below.

1

TURN ON THE DBS RECEIVER

Turn the power on using the DBS receiver's remote control.

2

SET REMOTE CONTROL MODE

Set the **VCR/TV/CABLE/DBS** switch on the VCR's remote control to CABLE/DBS.

3

ENTER DBS RECEIVER BRAND

While holding down **POWER** on the VCR's remote control, use the **NUMBER** keys to enter the DBS receiver brand number from the chart below and then press **STOP**. Follow the example shown at bottom left.

- Once you have set the remote control to operate the DBS receiver, you don't have to repeat this step until you replace the remote control's batteries.

4

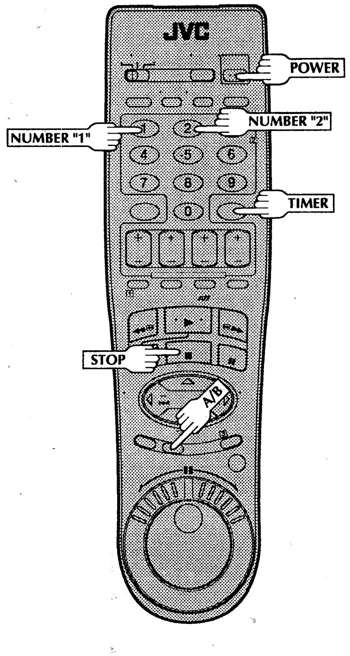
OPERATE DBS RECEIVER

First, press **POWER** to see if the DBS receiver's power goes off as it should. If it does, try other functions (**TV CH +/–** and the **NUMBER** keys can be used to operate the DBS receiver).

- For some brands of DBS receiver, you must press **ENTER** after having pressed the **NUMBER** keys.
- To return the remote to VCR control, set the **VCR/TV/CABLE/DBS** switch to VCR.

NOTES:

- *You must set the DBS receiver brand for your remote control and the DBS receiver brand for your Controller (☞ pg. 21) separately.*
- *Depending on the type of DBS receiver, there may be cases where some or all functions cannot be operated using the remote control.*
- *It's not possible to operate a DBS receiver that is not equipped with a remote control sensor.*
- *Though ECHOSTAR has a number of different remote codes, this remote control is applicable only to one of those codes preset at the factory.*
- *It's not possible to set the remote control for both your DBS receiver and a cable box at the same time. You can only set the remote control to operate one of these units at a time.*



Child Lock

This feature allows you to prevent the operation of the VCR.

1

TURN VCR POWER ON

Press **POWER**.

2

ENGAGE CHILD LOCK

Press and hold **POWER** on the remote control until the Child Lock indicator ("—") appears on the front display panel.

- Power turns OFF and the VCR cannot be turned on from the **POWER** button on the front panel.
- To cancel Child Lock, press and hold **POWER** on the remote until the VCR turns on. During timer recording, pressing **TIMER** also cancels Child Lock.

NOTES:

- *When Child Lock is engaged, make sure to keep the remote control out of the reach of children.*
- *Timer recording of programs that were previously set can be performed while the Child Lock is engaged. The feature remains in effect after the recording is finished.*

Control Two JVC VCRs

The remote control is capable of controlling two JVC VCRs independently; one set to respond to your remote control's **A** code control signals and another set to respond to **B** code control signals. The remote control is preset to send **A** code signals because your VCR is initially set to respond to **A** code signals. You can easily modify your VCR to respond to **B** code signals.

1

UNPLUG VCR'S POWER CORD

Unplug from the AC outlet.

2

SET REMOTE CONTROL CODE

While holding down **A/B** on the remote control, press the **NUMBER** key "2" and then press **STOP**.

3

PLUG IN POWER CORD

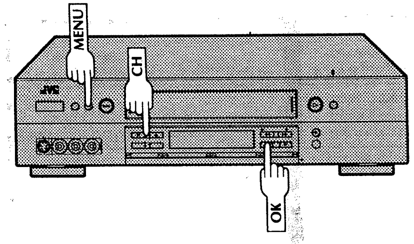
Plug back in to the AC outlet.

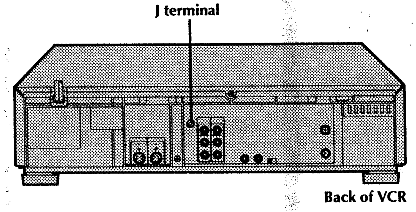
4

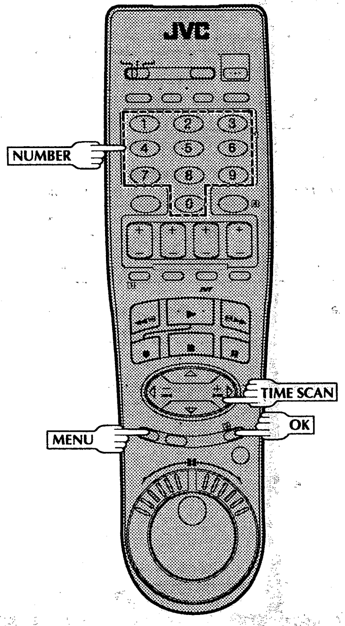
TURN VCR POWER ON

Press **POWER** on the remote.

The VCR will now respond only to B-code commands.
To set the VCR back to respond to A code signals, repeat the same procedure as shown above except pressing **NUMBER** key "1" instead of "2" in step **2**.
You can control two VCRs with the same remote control by switching the remote's code between A and B (☞ Step **2**), pressing "1" for A-code commands and "2" for B-code commands.







J Terminal (JLIP(Joint Level Interface Protocol) Connector)

The J Terminal is used to connect the VCR to a personal computer or similar device to allow computerized control of the VCR during editing and certain other operations.

For further details consult your nearest JVC dealer.
U.S. customers can contact JVC directly toll free at 1-800-252-5722.

JLIP ID Number
Your VCR has its own JLIP ID number. This ID number must be unique when your VCR is connected to another device via its J terminal. The ID Number is preset to "1" at the factory. You can change this number to any number between "1" and "99".
If it is necessary to change the JLIP ID number perform the following steps.

1 ACCESS MAIN MENU SCREEN

Press **MENU**.

2 ACCESS INITIAL SET SCREEN

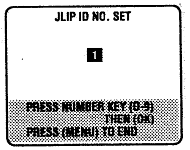
Move the highlight bar (arrow) to "INITIAL SET" by pressing **CH ▲∞** or **TIME SCAN △▽**, then press **OK** or **TIME SCAN ▷**.

3 ACCESS JLIP ID NO. SET SCREEN

Move the highlight bar (arrow) to "JLIP ID NO. SET" by pressing **CH ▲∞** or **TIME SCAN △▽**, then press **OK** or **TIME SCAN ▷**.

4 SET JLIP ID NUMBER

Press **NUMBER** key to enter the desired ID number, then press **OK**.


JLIP ID NO. SET

1

PRESS NUMBER KEY (0-9)
THEN (OK)
PRESS (MENU) TO END

5 RETURN TO NORMAL SCREEN

Press **MENU**.

NOTES:

This VCR may not accept commands from your personal computer such as:
- *Power ON/OFF while the VCR is in the Timer mode.*
- *Power ON when there is no cassette inserted in the VCR.*

Before requesting service for a problem, use this chart and see if you can repair the trouble yourself. Small problems are often easily corrected, and this can save you the trouble of sending your VCR off for repair.

POWER

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. The power won't come on.	• The power cord is disconnected.	Connect the power cord.
2. The clock works, but the VCR's power won't come on.	• The TIMER mode is engaged with Auto Timer set to "OFF" (☞ pg. 45). • The Child Lock mode is engaged.	Press **TIMER** to disengage. Press and hold **POWER** on the remote to disengage the mode (☞ pg. 63).
3. The remote control won't function.	• The batteries are discharged.	Replace the dead batteries with new ones.

TAPE TRANSPORT

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. The cassette gets stuck partway during loading, and is ejected.	• The cassette was inserted incorrectly.	Make sure the cassette's window is facing up, the rear label side is facing you and the arrow on the front of the cassette is pointing towards the VCR. Then insert the cassette.

PLAYBACK

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. The tape is running but the picture won't appear.	• If you're using the RF OUT connection (☞ pg. 6), the channel selector on the TV is set incorrectly. • If you're using the AV connection (☞ pg. 6), the TV receiver is set to the wrong mode.	Set the channel selector to channel 3 or 4. Set the TV receiver to its AV mode.
2. Noise appears during visual search.	• This is normal.	
3. Breaks are noticeable in Hi-Fi soundtrack.	• Automatic tracking is engaged.	Disengage Auto Tracking and adjust the tracking manually (☞ pg. 26).
4. The playback picture is blurred or interrupted, even though TV broadcasts are clear.	• The video heads may be dirty.	The heads must be cleaned. Consult your JVC dealer.
5. The Hi-Fi soundtrack cannot be heard.	• The AUDIO MONITOR option was set incorrectly.	Set AUDIO MONITOR to "HI-FI" (☞ pg. 30).

RECORDING

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Recording won't start.	• There's no cassette loaded. • The loaded cassette has had its record safety tab removed.	Insert a cassette. Remove the cassette and cover the hole with adhesive tape, or load a cassette on which the record safety tab is intact.
2. TV broadcasts won't record properly.	• The VCR has been set to its AUX mode by mistake.	Set the VCR to the appropriate channel.
3. Tape-to-tape editing won't work.	• The VCRs or the camcorder and the VCR have been incorrectly connected. • The power to one or more of the units has not been turned on. • The recorder's input mode has been set incorrectly.	Refer to the directions and the illustration under "Edit To Or From Another VCR" (☞ pg. 56) or "Edit From A Camcorder" (☞ pg. 54) and properly connect the units. Make sure the power to all units is on. Select the recorder's appropriate input mode.

CONTINUED ON NEXT PAGE

TIMER RECORDING

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Timer recording won't work.	• The clock and/or the timer have been set incorrectly. • The timer is not engaged. • The VCR has not been set up properly.	Set the clock and/or timer correctly. Press **TIMER** and check to make sure that ⊕ appears on the front display panel. Re-perform the set-up procedures. Make sure you have compensated for Guide Channel and VCR or cable box channel number mismatches (☞ pg. 48).
2. Timer programming won't work.	• Timer recording is in progress.	Timer programming can't be performed when timer recording is in progress. Wait until it finishes.
3. ⊕ and 📼 on the front display panel won't stop blinking.	• The timer is engaged but there's no cassette loaded.	Load a cassette with the record safety tab intact, or with the hole covered with adhesive tape.
4. The cassette is automatically ejected, and ⊕ and 📼 on the front display panel won't stop blinking.	• The loaded cassette has had its record safety tab removed.	Remove the cassette and cover its hole with adhesive tape, or replace it with a cassette on which the safety tab is intact.
5. ⊕ blinks for 10 seconds and the timer mode is disengaged.	• **TIMER** has been pressed when there are no programs in memory, or the timer record program information has not been programmed correctly.	Check the programmed data and re-program as necessary, then press **TIMER** again.
6. The cassette is automatically ejected, the power shuts off and ⊕ and 📼 won't stop blinking.	• The end of tape was reached during timer recording.	The program may not have been recorded in its entirety. Next time make sure you have enough time on the tape to record the entire program.
7. Cable channels are not automatically switched during timer recording.	• The Controller is not properly connected to the VCR. • The output channel selected in the Cable Box Set screen is incorrect. • The cable box's power is off.	Connect the Controller correctly (☞ pg. 16). After confirming your cable box's output channel number, re-access the Cable Box Set screen and select the correct number (☞ pg. 17). Make sure the power is on before timer recording starts.
8. Satellite channels are not automatically switched during timer recording.	• The Controller is not properly connected to the VCR. • The output channel selected in the DBS Receiver Set screen is incorrect. • The VCR is not set correctly to control the DBS Receiver • The DBS receiver's power is off.	Connect the Controller correctly (☞ pg. 19). After confirming your DBS receiver's output channel number, re-access the DBS Receiver Set screen and select the correct number (☞ pg. 20). Set the correct DBS Receiver brand code (☞ pg. 21). Make sure the power is on before timer recording starts.
9. Timer recording begins as scheduled, but the channel is always incorrect.	• Even though you don't use an external Cable Box, "CABLE BOX SET" is set to "ON".	Set "CABLE BOX SET" to "OFF" (☞ pg. 17).
10.We moved, and now VCR Plus+ doesn't work properly.	• The receivable stations in the new area are received on different channels than those in the previous area.	Re-perform the VCR Plus+ setup procedure (☞ pg. 48).
11.“PROGRAM FULL” is displayed on the screen.	• All 8 programs of the VCR's timer memory are used.	Wait until a space in memory clears, or cancel unnecessary program information (☞ pg. 52).

OTHER PROBLEMS

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. When scanning channels, some of them are skipped over.	• Those channels have been preset to be skipped.	If you need the skipped channels, restore them (☞ pg. 15).
2. The channel can't be changed.	• Recording is in progress.	Press **PAUSE** to pause the recording, change channels, then press **PLAY** to resume recording.
3. The remote control won't operate my TV or cable box or DBS receiver.	• The remote control brand setting is incorrect.	Re-set the remote control to the correct brand (☞ pg. 60 or 61 or 62).
4. Even though Auto or Semi-Auto clock setting has been selected, the clock is incorrect.	• The clock setting data received from the Host Channel is incorrect.	Select a different Host Channel during the Semi-Auto setting procedure (☞ pg. 12), or perform the Manual setting procedure (☞ pg. 13).

ATTENTION
This VCR contains microcomputers. External electronic noise or interference can cause microcomputer to malfunction. If the VCR does not operate correctly switch its power off and unplug the power cord from the AC supply. Wait for a while and then plug the power back in. Eject and check the condition of the cassette. If everything appears normal resume operating the VCR as usual.

PLAYBACK

Q. What happens if the end of the tape is reached during playback or search?
A. The tape is automatically rewound to the beginning.

……

Q. Can the VCR indefinitely remain in the still mode?
A. No. It stops automatically after 5 minutes to protect the heads.

……

Q. During search, still and frame-by-frame playback, the picture is intermittent. What's the cause?
A. Picture loss occurs when these types of playback are attempted with a tape recorded in LP mode. Pressing **PLAY** to return to normal playback will restore the picture.

……

Q. When returning from multi-speed search to normal playback, the picture is disturbed. Should I be concerned about this?
A. No, it is normal.

……

Q. When playing back programs that have been timer-recorded with consecutive times (such one program from 8:00 to 9:00 and another one from 9:00 to 10:00), the picture and sound become momentarily distorted at the point where the first program ends and the second program begins. Is this a malfunction?
A. No. This is normal.

……

Q. Other than preventing further recording, what effect does removing the safety tab have?
A. It disables marking of index codes.

……

Q. Sometimes, during Index Search, the VCR can't find the program I want to see. Why not?
A. There may be index codes too close together.

……

Q. During playback, on-screen operational indicators sometimes jitter. Why does this happen?
A. If the condition of the tape being played back is not good, jittering of the video (including on-screen indicators) may occur.

RECORDING

Q. When I pause and then resume a recording, the end of the recording before the pause is overlapped by the new recording. Why does this happen?
A. This is normal. It reduces distortion at the pause and resume points.

……

Q. Can the VCR indefinitely remain in the Record-Pause mode?
A. No. The VCR automatically goes to its Stop mode after 5 minutes to protect the heads. When paused during Instant Timer Recording (ITR), the VCR shuts off automatically after 5 minutes.

……

Q. What happens if the tape runs out during recording?
A. The VCR automatically rewinds it to the beginning.

TIMER RECORDING

Q. REC and ⏲ remain lit on the front display panel. Is there a problem?
A. No. This is a normal condition for a timer recording in progress.

……

Q. Can I program the timer while I'm watching a tape or a TV broadcast?
A. Yes, but while you are setting the timer you won't see the tape's or broadcast program's picture as it is replaced by the on-screen menu. The audio from the tape or broadcast program will be present during the setting of the timer.

List Of Terms

This guide serves as a quick way to locate frequently used terms and on-screen display names.

A

A/B Code 63
Active Video Calibration 36
Add Channel 15
Audio Dubbing 57
Audio Monitor 30
Auto Channel Setting 14
Auto Daylight Saving Time 12
Auto SP→EP Timer 53
Auto Timer 53
Automatic Tracking 26
Aux Input 54
AV Compu Link Playback 34
AV Connection 6

B

Band 14

C

Cable Box 16
Cable Box Brand Setting 18
Cable Box Controller 16
Cancel Program 52
Cassette Adapter 22
Check Program 52
Child Lock 63
Commercial Advance 32
Connection to TV 6
Contents 5
Counter Reset 27

D

DBS Receiver 19
DBS Receiver Brand Setting 21
DBS Receiver Controller 19
Delete Channel 15
Digital R3 35
Digital TBC/NR 35

E

Editing 54
Express Timer Programming 50
Express Timer Recording 50

F

Frame-by-Frame Playback 24

G

Guide Channel Setting 49

H

Host Channel Selection 12

I

Index Search 26
Insert Cassette 22
Insert Editing 58
Instant ReView 27
ITR (Instant Timer Recording) 45

J

JLIP Terminal 64
JOG Dial 25

L

Language Selection 10

M

Main Menu 10
Manual Channel Setting 15
Manual Clock Setting 13
Manual Tracking 26
MBR (Multi-Brand Remote) Code Setting 60
Movie Advance 31

N

Next-Function Memory 27

O

On-Screen Display 29

P

PBS Channel 8
Playback 22
Plug & Play 8
Pro-Slow 24

R

Record Safety Tab 23
Recording 23
Repeat Playback 27
Reverse Motion Playback 24
Reverse Slow Motion Playback 24
RF Connection 6

S

SAP (Second Audio Program) 43
Second Audio 43
Select Cable Box Output Channel 17
Select DBS Receiver Output Channel 20
Semi-Auto Clock Setting 12
SHUTTLE ring 22
Skip Search 26
Slow Motion Playback 24
Specifications 73
Still Picture Playback 24
Superimpose 29
S-VHS (Super VHS) 41
S-VHS ET 42
S-Video Connection 7

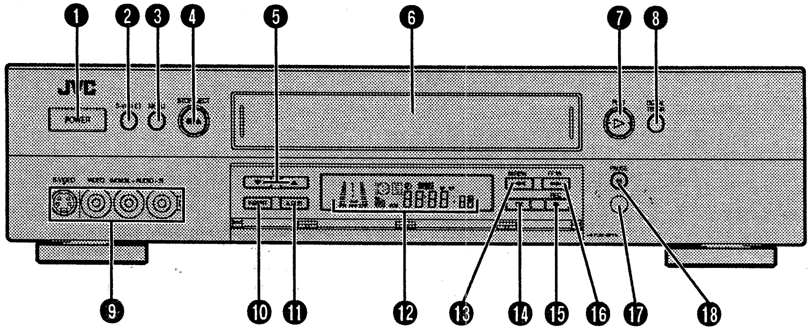
T

Tape Position Indicator 27
Tape Speed Setting 23
TimeScan 38
Time Zone Selection 13
Tuner Setting 14

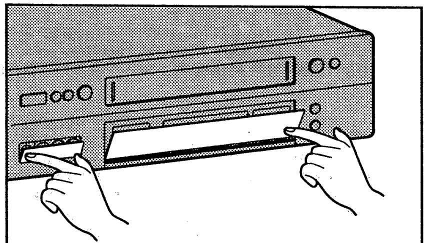
V

Variable-Speed Search 25
VCR Plus+ Timer Programming 46
VCR Plus+ Timer Recording 46
Video Stabilizer 28

FRONT VIEW



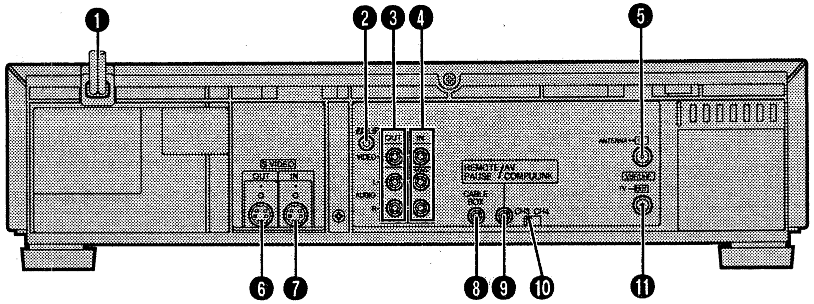
Attach the provided connector cover when you do not use the front panel connectors.



Open the lid to access covered buttons/connectors.

① Power On/Off Button (☞ pg. 10)
② S-VHS ET Button (☞ pg. 42)
③ MENU Button (☞ pg. 10)
④ STOP/EJECT Button (☞ pg. 22)
⑤ Channel [CH] ▲∞ Button (☞ pg. 23)
⑥ Cassette Loading Slot
⑦ PLAY Button (☞ pg. 22)
⑧ DIGITAL TBC/NR Button (☞ pg. 35)
⑨ S-VHS/VIDEO/AUDIO Input Connectors (☞ pg. 54)
⑩ INSERT Button (☞ pg. 58)
⑪ Audio Dubbing [A. DUB] Button (☞ pg. 57)
⑫ Front Display Panel (☞ pg. 71)
⑬ Rewind [REW] Button (☞ pg. 22)
⑭ OK Button (☞ pg. 10)
⑮ Record [REC] Button (☞ pg. 23)
⑯ Fast-Forward [FF] Button (☞ pg. 22)
⑰ Remote Control Sensor
⑱ PAUSE Button (☞ pg. 24)

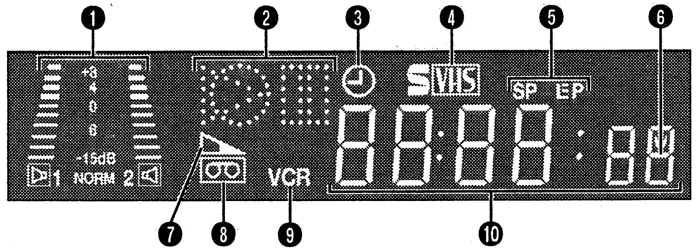
REAR VIEW



① Power Cord (☞ pg. 6)
② J Terminal (JLIP(Joint Level Interface Protocol) Connector) (☞ pg. 64)
③ VIDEO/AUDIO Output Connectors (☞ pg. 6)
④ VIDEO/AUDIO Input Connectors (☞ pg. 56)
⑤ ANTENNA IN Connector (☞ pg. 6)
⑥ S-Video (S-VHS) Output Connector (☞ pg. 7)
⑦ S-Video (S-VHS) Input Connector (☞ pg. 56)
⑧ CABLE BOX Controller Connector (☞ pg. 16, 19)
⑨ REMOTE PAUSE/AV COMPULINK Connector
- REMOTE PAUSE Connector (☞ pg. 54)
- AV COMPU-LINK Connector (☞ pg. 31)

⑩ Channel 3/4 Switch (☞ pg. 6)
⑪ TV OUT Connector (☞ pg. 6)

FRONT DISPLAY PANEL

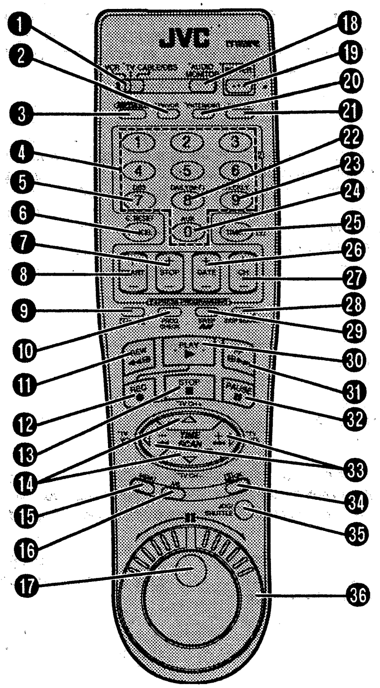


① Audio Level Indicator ☞ pg. 44
② Symbolic Mode Indicators

PLAY: FF/REW VARIABLE SHUTTLE SEARCH:	▷	STILL: SLOW:	▷▥
		RECORD:	○
		RECORD PAUSE:	○▥
AUDIO DUBBING:			☼
AUDIO DUBBING PAUSE:			☼▥
INSERT:			◎
INSERT PAUSE:			◎▥
AUDIO DUBBING INSERT:			☼
AUDIO DUBBING INSERT PAUSE:			☼▥

③ Timer Mode Indicator
④ S-VHS Indicator (☞ pg. 41)
⑤ Tape Speed Indicators (☞ pg. 23)
⑥ Child Lock Indicator (☞ pg. 63)
⑦ Tape Remaining Time Indicator (☞ pg. 40)
⑧ "Cassette Loaded" Mark
⑨ VCR Mode Indicator (☞ pg. 40)
⑩ Channel Display ["L-1" and "F-1" for AUX mode]
Counter Display (☞ pg. 8)
Clock Display (☞ pg. 8)

REMOTE CONTROL

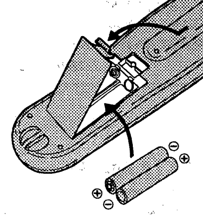


Buttons with a small dot on the left side of the name can also be used to operate your TV with the **VCR/TV/CABLE/DBS** switch set to TV. ☞ pg. 60

① VCR/TV/CABLE/DBS Switch (☞ pg. 60)
② TV/VCR Button (☞ pg. 40)
③ Instant REVIEW Button (☞ pg. 27)
④ NUMBER Buttons (☞ pg. 23, 46)
⑤ DBS Button (☞ pg. 51)
⑥ CANCEL Button (☞ pg. 52)
Counter [C.] RESET Button (☞ pg. 27)
⑦ STOP +/– Button (☞ pg. 50)
⑧ START +/– Button (☞ pg. 50)
⑨ PROG. Button (☞ pg. 38, 50)
⑩ PROG. CHECK Button (☞ pg. 52)
⑪ Rewind [REW] Button (☞ pg. 22)
⑫ Record [REC] Button (☞ pg. 23)
⑬ STOP Button (☞ pg. 22)
⑭ TIME SCAN △▽ Button (☞ pg. 10)
TV Channel [CH] +/– Button (☞ pg. 60, 61, 62)
⑮ MENU Button (☞ pg. 10)
⑯ A/B Code Button (☞ pg. 63)
⑰ JOG Dial (☞ pg. 14)
⑱ AUDIO MONITOR Button (☞ pg. 30)
TV Muting Button (☞ pg. 60)
⑲ POWER On/Off Button (☞ pg. 10)
⑳ ENTER Button (☞ pg. 23)
On-Screen Display [OSD] Button (☞ pg. 29)
㉑ DISPLAY Button (☞ pg. 27)
㉒ DAILY Timer Recording Button (☞ pg. 47, 51)
㉓ WEEKLY Timer Recording Button (☞ pg. 47, 51)
㉔ "AUX" Mode Select Button (☞ pg. 54)
㉕ TIMER Button (☞ pg. 47, 51)
㉖ DATE +/– Button (☞ pg. 50)
㉗ Channel [CH] +/– Button (☞ pg. 23, 51)
㉘ SKIP SEARCH Button (☞ pg. 26, 30)
㉙ Recording Speed [SP/EP] Button (☞ pg. 23)
㉚ PLAY Button (☞ pg. 22)
㉛ Fast-Foward [FF] Button (☞ pg. 22)
㉜ PAUSE Button (☞ pg. 24)
㉝ TIME SCAN ⏮ ⏭ (◁ ▷) Button
(☞ pg. 24, 38)
TV Volume [VOL] +/– Button (☞ pg. 60)
㉞ OK Button (☞ pg. 10)
㉟ JOG/SHUTTLE Button (☞ pg. 22)
㊱ SHUTTLE Ring (☞ pg. 22)

Installing Batteries

1 Open the battery compartment cover.
2 Insert 2 "AA"-size batteries (provided) in the direction indicated under the battery cover.
3 Replace the cover.



How To Use

The remote control can operate most of your VCR's functions.

1 Point the remote control toward the sensor window. (☞ pg. 70)
2 Press the appropriate operation button.
3 The maximum operating distance of the remote control is about 8 m.

NOTES:

- *This remote control can also operate various brands of TVs, Cable Boxes and DBS Receivers. For instructions, ☞ pg. 60 – 62.*
- *If the remote control doesn't work properly, remove its batteries, wait a short time, replace the batteries and then try again.*

SPECIFICATIONS

GENERAL

Power requirement	: AC 120 V∿ , 60 Hz
Power consumption	
Power on	: 28 W
Power off	: 3 W
Temperature	
Operating	: 5°C to 40°C (41°F to 104°F)
Storage	: –20°C to 60°C (–4°F to140°F)
Operating position	: Horizontal only
Dimensions (W x H x D)	: 437 x 109 x 340 mm (17-1/4" x 4-5/16" x 13-7/16")
Weight	: 4.8 kg (10.6 lbs)
Format	: S-VHS/VHS NTSC standard
Maximum recording time	
SP	: 210 min. with ST-210 video cassette
EP	: 630 min. with ST-210 video cassette

VIDEO/AUDIO

Signal system	: NTSC-type color signal and EIA monochrome signal, 525 lines/60 fields
Recording/ Playback system	: DA-4 (Double Azimuth) head helical scan system
Signal-to-noise ratio	: 45 dB
Horizontal resolution	: 240 lines (VHS) : 400 lines (S-VHS)
Frequency range	
Normal audio	: 70 Hz to 10,000 Hz
Hi-Fi audio	: 20 Hz to 20,000 Hz
Input/Output	: RCA connectors (IN x 2, OUT x 1) : S-Video connectors (IN x 2, OUT x 1)

TUNER

Tuning system	: Frequency-synthesized tuner
Channel coverage	
VHF	: Channels 2–13
UHF	: Channels 14–69
CATV	: 113 Channels
RF output	: Channel 3 or 4 (switchable; preset to Channel 3 when shipped) 75 ohms, unbalanced

TIMER

Clock reference	: Quartz
Program capacity	: 1-year programmable timer/ 8 programs
Memory backup time	: Approx. 10 min.

ACCESSORIES

Provided accessories	: RF cable (F-type), Infrared remote control unit, "AA" battery x 2, Audio/Video Cable, S-Video cable (4-pin), Controller, Connector cover (for front panel connectors)

Specifications shown are for SP mode unless otherwise specified. E. & O.E. Design and specifications subject to change without notice.

HOW TO LOCATE YOUR JVC SERVICE CENTER

TOLL FREE: 1-800-252-5722

Dear customer:

In order to receive the most satisfaction from your purchase, read the instruction booklet before operating the unit. In the event that repair is necessary, or for the address nearest your location, please refer to the factory service center list below or within the Continental United States, call 1-800-252-5722 for your authorized servicer. Remember to retain your Bill of Sale for Warranty Service.

— JVC

JVC SERVICE & ENGINEERING COMPANY OF AMERICA
DIVISION OF US JVC CORP.

FACTORY SERVICE CENTER LOCATIONS

107 Little Falls Road
Fairfield, NJ 07004-2105
(973) 808-9279

5665 Corporate Avenue
Cypress, CA 90630-4727
(714) 229-8011

230 Eliot Street
Ashland, MA 01721-2377
(508) 881-5923

1500 Lakes Parkway
Lawrenceville, GA 30243-5857
(770) 339-2522

10700 Hammerly Boulevard, Suite 110
Houston, TX 77043-2310
(713) 935-9331

8192 W State Road 84
Davie, FL 33324-4611
(954) 472-1960

705 Enterprise Street
Aurora, IL 60504-8135
(630) 851-7855

2969 Mapunapuna Place, Suite 101
Honolulu, HI 96819-2000
(808) 833-5828

890 Dubuque Avenue
South San Francisco, CA 94080-1804
(415) 871-2666

Sophisticated electronic products may require occasional service. Just as quality is a keyword in the engineering and production of the wide array of JVC products, service is the key to maintaining the high level performance for which JVC is world famous. The JVC service and engineering organization stands behind our products.

NATIONAL HEADQUARTERS
JVC SERVICE & ENGINEERING COMPANY OF AMERICA
DIVISION OF US JVC CORP.
107 Little Falls Road
Fairfield, NJ 07004-2105

If you ship the product...

Pack your JVC unit in the original carton or one of equivalent size and strength. Enclose, with the unit, a letter stating the problem or symptom that exists and also a copy of the receipt or bill of sale you received when you purchased your JVC unit. Print your home return address on the outside and the inside of the carton. Send to the appropriate JVC Factory Service Center as listed above.

ACCESSORIES

To purchase accessories for your JVC product, you may contact your local JVC Dealer.
Or from the 48 Continental United States call toll free:
1-800-882-2345.

Don't service it yourself.

CAUTION

To prevent electrical shock, do not open the cabinet. No user serviceable parts inside.
Refer servicing to qualified service personnel.

LIMITED WARRANTY

CONSUMER VIDEO 1-90

JVC COMPANY OF AMERICA warrants this product and all parts thereof, except as set forth below ONLY TO THE ORIGINAL PURCHASER AT RETAIL to be FREE FROM DEFECTIVE MATERIALS AND WORKMANSHIP from the date of original retail purchase for the period as shown below. ("The Warranty Period")

PARTS	LABOR
1 YR	90 DAYS

THIS LIMITED WARRANTY IS VALID ONLY IN THE FIFTY (50) UNITED STATES, THE DISTRICT OF COLUMBIA AND IN COMMONWEALTH OF PUERTO RICO.

WHAT WE WILL DO:
If this product is found to be defective, JVC will repair or replace defective parts at no charge to the original owner. Such repair and replacement services shall be rendered by JVC during normal business hours at JVC authorized service centers. Parts used for replacement are warranted only for the remainder of the Warranty Period. All products and parts thereof may be brought to a JVC authorized service center on a carry-in basis except for Television sets having a screen size 25 inches and above which are covered on an in-home basis.

WHAT YOU MUST DO FOR WARRANTY SERVICE:
Return your product to a JVC authorized service center with a copy of your bill of sale. For your nearest JVC authorized service center, please call toll free: (800) 252-5722.

If service is not available locally, box the product carefully, preferably in the original carton, and ship, insured, with a copy of your bill of sale plus a letter of explanation of the problem to the nearest JVC Factory Service Center, the name and location of which will be given to you by the toll-free number.

If you have any questions concerning your JVC Product, please contact our Customer Relations Department.

WHAT IS NOT COVERED:
This limited warranty provided by JVC does not cover:

1. Products which have been subject to abuse, accident, alteration, modification, tampering, negligence, misuse, faulty installation, lack of reasonable care, or if repaired or serviced by anyone other than a service facility authorized by JVC to render such service, or if affixed to any attachment not provided with the products, or if the model or serial number has been altered, tampered with, defaced or removed;
2. Initial installation and installation and removal for repair;
3. Operational adjustments covered in the Owner's Manual, normal maintenance, video and audio head cleaning;
4. Damage that occurs in shipment, due to act of God, and cosmetic damage;
5. Signal reception problems and failures due to line power surge;
6. Video Pick-up Tubes/CCD Image Sensor, Cartridge, Stylus (Needle) are covered for 90 days from the date of purchase;
7. Accessories;
8. Batteries (except that Rechargeable Batteries are covered for 90 days from the date of purchase); from the date of purchase);

There are no other express warranties except as listed above.

THE DURATION OF ANY IMPLIED WARRANTIES INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY, IS LIMITED TO THE DURATION OF THE EXPRESS WARRANTY HEREIN.

JVC SHALL NOT BE LIABLE FOR THE LOSS OF USE OF THE PRODUCT, INCONVENIENCE, LOSS OR ANY OTHER DAMAGES, WHETHER DIRECT, INCIDENTAL OR CONSEQUENTIAL (INCLUDING, WITHOUT LIMITATION, DAMAGE TO TAPES, RECORDS OR DISCS) RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY. ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, ARE LIMITED TO THE WARRANTY PERIOD SET FORTH ABOVE.

Some states do not allow the exclusion of incidental or consequential dameges or limitations on how long an implied warranty lasts, so these limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

JVC COMPANY OF AMERICA
DIVISION OF US JVC CORP.

41 Slater Drive
Elmwood Park, New Jersey 07407

REFURBISHED PRODUCTS CARRY A SEPARATE WARRANTY, THIS WARRANTY DOES NOT APPLY. FOR DETAILS OF REFURBISHED PRODUCT WARRANTY, PLEASE REFER TO THE REFURBISHED PRODUCT WARRANTY INFORMATION PACKAGED WITH EACH REFURBISHED PRODUCT.

For customer use:
Enter below the Model No. and Serial No. which is located either on the rear, bottom or side of the cabinet. Retain this information for future reference.

Model No.: ______________

Serial No.: ______________

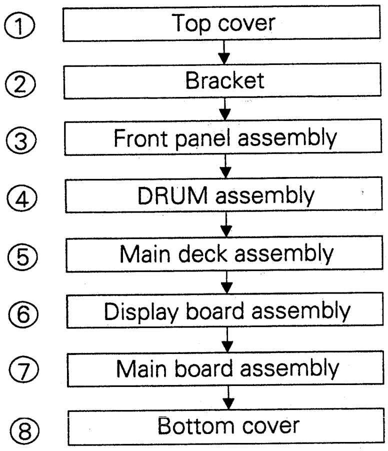
Purchase date: ______________

Name of dealer: ______________

SECTION 1
DISASSEMBLY

1.1 DISASSEMBLY FLOW CHART

This flowchart lists the disassembling steps for the cabinet parts and P.C. boards in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally laid.



1.2 HOW TO READ THE DISASSEMBLY AND ASSEMBLY

STEP /LOC NO.	PART NAME	FIG. NO.	POINT	NOTE
①	TOP COVER	D1	3(S1)	<NOTE 1>
②	BRACKET	D2	2(S2)	
③	FRONT PANEL ASSEMBLY	D3	7(L1)	<NOTE 2> <NOTE 3>
↑ (1)	↑ (2)	↑ (3)	↑ (4)	↑ (5)

(1) Order of steps in Procedure
When reassembling, perform the step(s) in the reverse order. These numbers are also used as the identification (location) NO. of parts Figures.
(2) Part name to be removed or installed.
(3) Fig.No. showing procedure or part location
(4) Indentification of part to be removed,unhooked,unlocked, released,unpluged,unclamped or unsoldered. P = Spring, W = Washer, S = Screw, L = Locking tab, * = Unhook,unlock, release,unplug or unsolder.
(5) Adjustment information for installation

1.3 DISASSEMBLY/ASSEMBLY METHOD

STEP /LOC NO.	PART NAME	FIG. NO.	POINT	NOTE
①	TOP COVER	D1	4(S1), (S2)	
②	BRACKET	D2	2(S3)	
③	FRONT PANEL ASSEMBLY	D3	2(S4),9(L1),WR2, 2(L2),WR1, *CN7191,CN7192, JACK BOARD	<NOTE 1> <NOTE 2>
④	DRUM ASSEMBLY	D4	3(S5),CN1,CN3301, WR3,WR4,4(L3), (L4),(P1) INERTIA PLATE ROLLER ARM ASSY	<NOTE 2>
⑤	MAIN DECK ASSEMBLY	D5	2(S6),2(S7),WR5 2(L5),*CN4001	<NOTE 3>
⑥	DISPLAY BOARD ASSEMBLY	D6	8(L6), *CN7001, REC SAFETY BOARD (L7)	<NOTE 4>
⑦	MAIN BOARD ASSEMBLY	D7	(S8), 2(S9)	
⑧	BOTTOM COVER	D8	2(S10),4(L8), 7(L9),4(L10)	

<NOTE1>
- Before attaching the Front panel assembly, ensure that the door opener ⓐ is in the lowered position.

<NOTE2>
- When inserting the flat wire into the connector, be careful not to mistake the positioning of its electrodes.

<NOTE3>
- When it is required to remove the screws (S6) retaining the Main deck assembly, please refer to the "Procedures for Lowering the Cassette holder assembly"(See on pages 1-3).
- The Main deck assembly is also retained by two spacers on the Main board. Therefore, to remove the Main deck assembly, insert radio pliers or a similar tool from the main deck side and pinch the two hooks of the spacers while removing.
- When attaching the Main deck assembly, be careful not to damage the sensors and switches on the Main board (D3001: LED, Q3001: Start sensor, Q3002: End sensor S3001 : S cassette switch).

<NOTE4>
- The REC safety board assembly is attached to the Display board assembly. It is therefore necessary to remove the REC safety board assembly before removing the Display board assembly.
- When inserting the flat wire into the connector, be careful not to mistake the positioning of its electrodes.

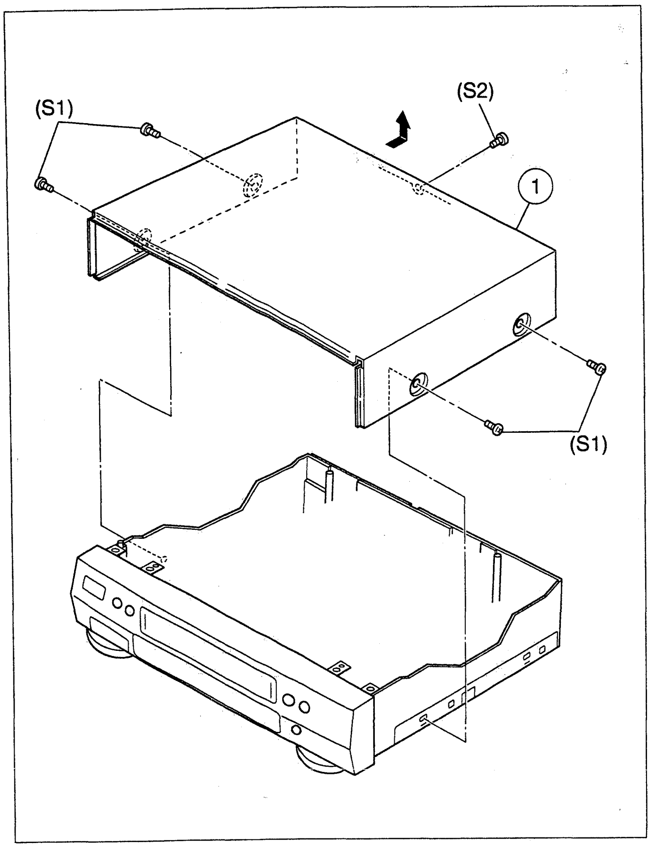


Fig. D1

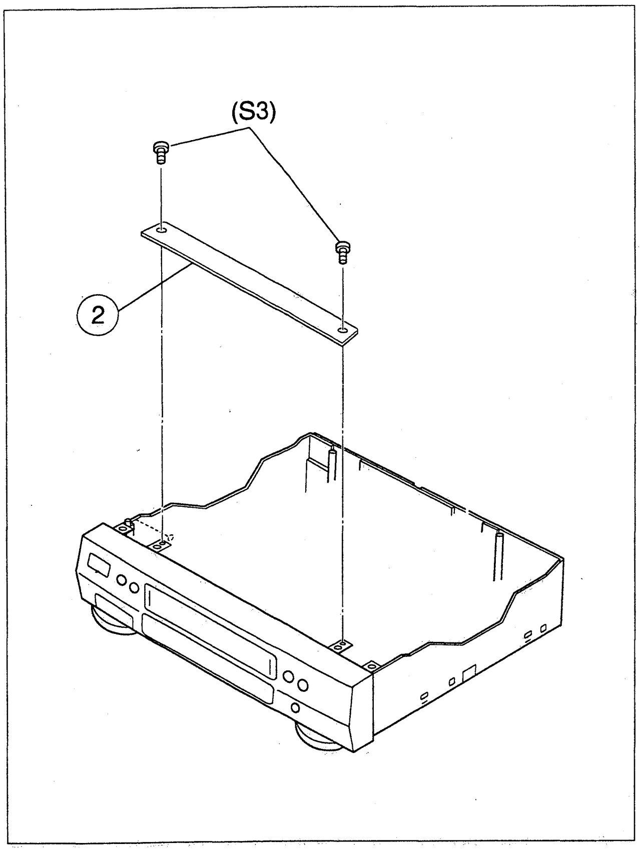


Fig. D2

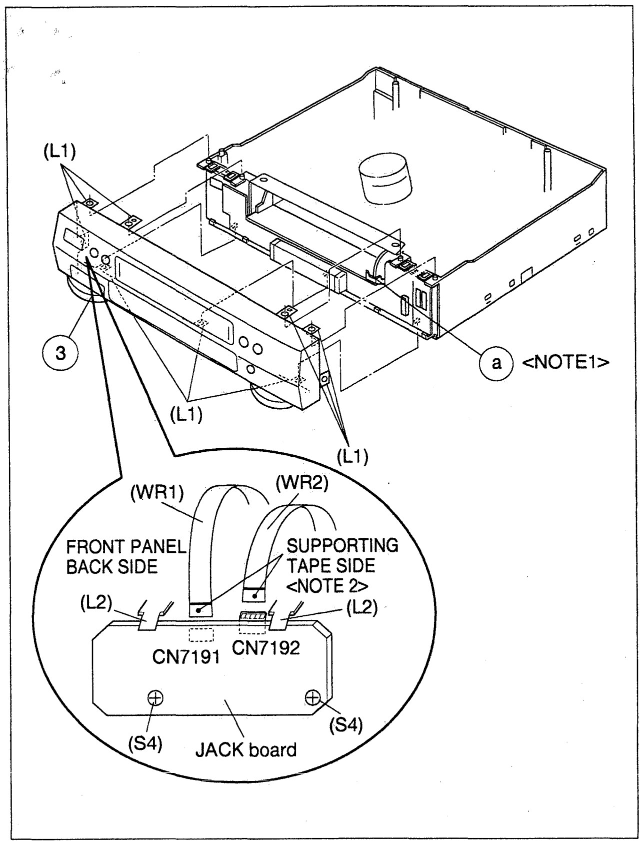

(L1)
3
a
<NOTE1>
(L1)
(L1)
(WR1)
(WR2)
FRONT PANEL BACK SIDE
SUPPORTING TAPE SIDE <NOTE 2>
(L2)
(L2)
CN7191
CN7192
(S4)
(S4)
JACK board

Fig. D3

NOTE: When installing the DRUM assembly, secure the screw (S5) in the order of A. B. C.

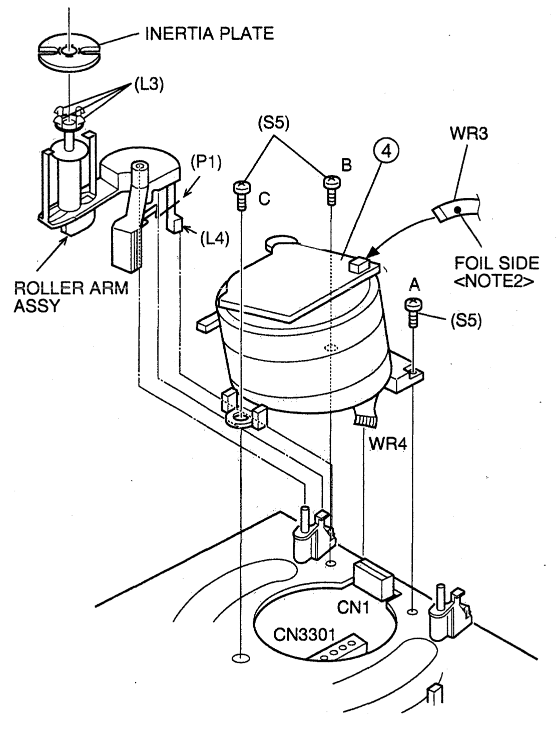

INERTIA PLATE
(L3)
(S5)
(P1)
B
C
4
WR3
(L4)
ROLLER ARM ASSY
FOIL SIDE <NOTE2>
A
(S5)
WR4
CN1
CN3301

Fig. D4

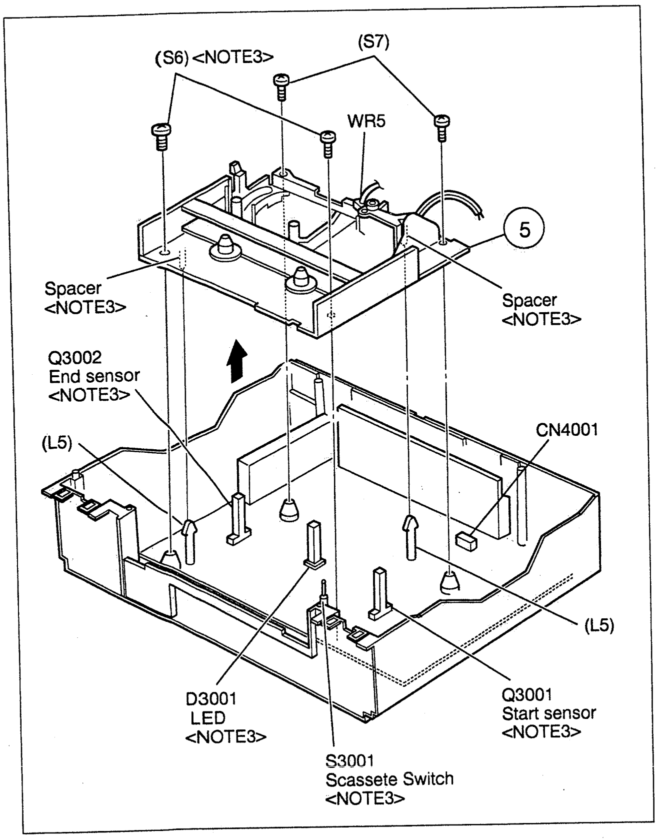

(S6) <NOTE3>
(S7)
WR5
5
Spacer <NOTE3>
Spacer <NOTE3>
Q3002 End sensor <NOTE3>
(L5)
CN4001
(L5)
D3001 LED <NOTE3>
Q3001 Start sensor <NOTE3>
S3001 Scassete Switch <NOTE3>

Fig. D5

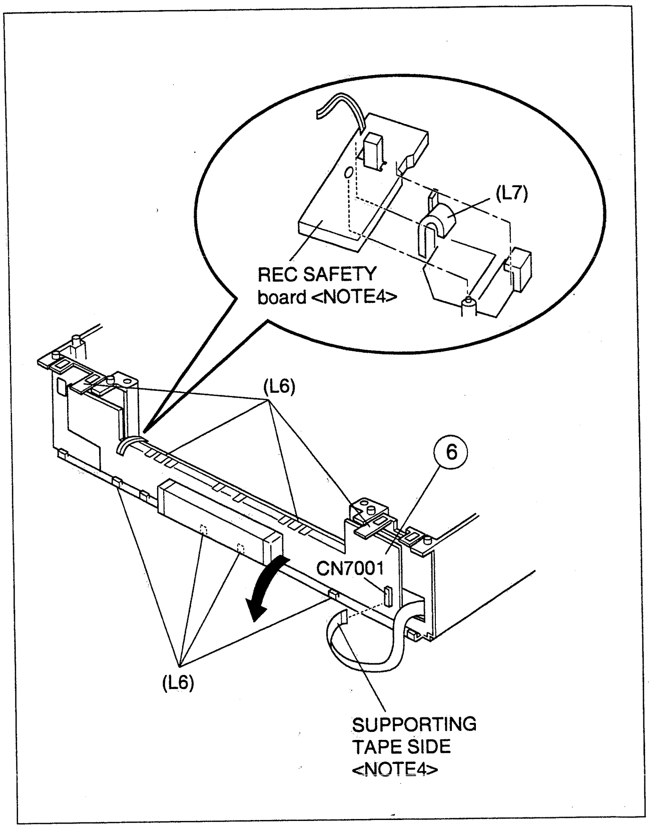

(L7)
REC SAFETY board <NOTE4>
(L6)
6
CN7001
(L6)
SUPPORTING TAPE SIDE <NOTE4>

Fig. D6

Procedures for Lowering the Cassette holder assembly

As the mechanism of this unit is integrated with the Housing assembly, the holder must be lowered and the two bolts unscrewed when removing the Main deck assembly.

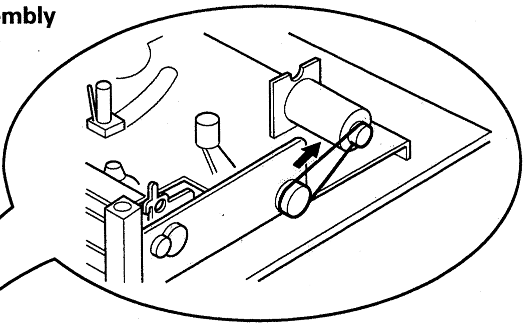


Fig. 2

Turn the loading motor pulley in the direction as indicated by Fig.2. As bothⒶandⒷlevers are lodged twice, push the levers in the direction as indicated by Fig.3 to release them. When pushing the levers, do it in the order of Ⓐ,Ⓑ,Ⓑ,Ⓐ. When the holder has been lowered, turn the pulley until the cassette holder is securely in place without allowing any up/down movement.

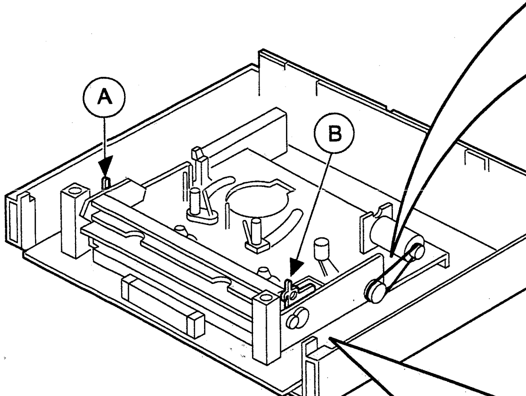


Fig. 1

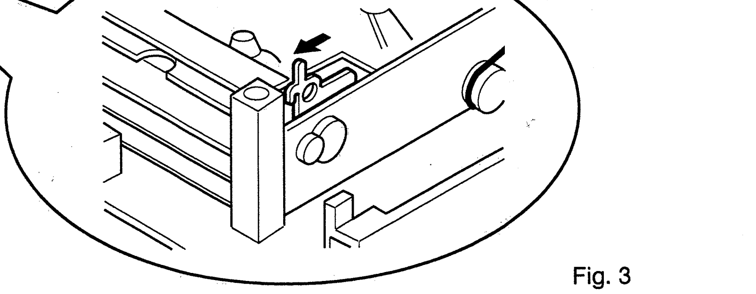


Fig. 3

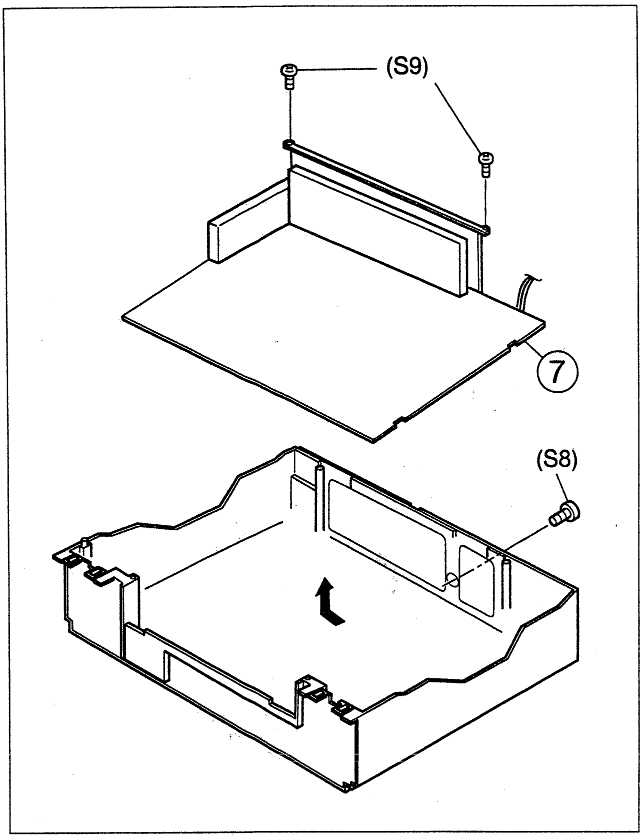


Fig. D7

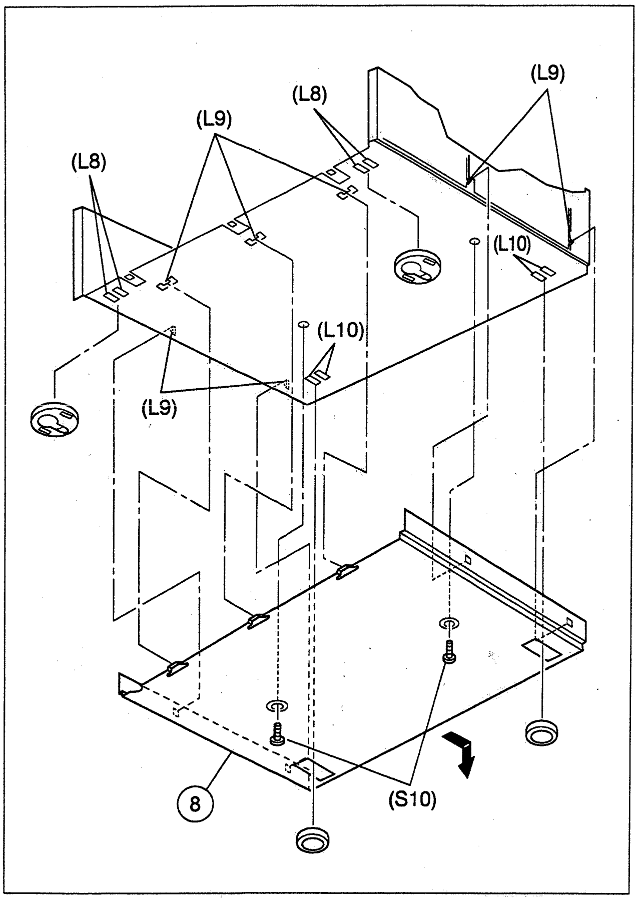


Fig. D8

1.4 SERVICE POSITION

In order to facilitate diagnosis and the repair of the Main deck assembly, this unit is constructed so as to allow the Main deck and the Main board assemblies to be removed together from the Chassis assembly.

1.4.1 How to take out the Mechanism and Main board assemblies

(1) Remove the Top cover, Bracket, Front panel assembly and JACK board assembly. (See 1.3 DISASSEMBLY/ASSEMBLY METHOD. Take care not to pull the drum wire (Fig.D4) from CN1).

(2) Lower the cassette holder, and make the preparations required in order to remove the screws from the Main deck assembly (Refer to the "Procedures for Lowering the Cassette holder assembly" on pages 1-3 of 1.3 DISASSEMBLY/ASSEMBLY METHOD).

(3) Take out 2 screws Ⓐ and 2 screws Ⓑ as shown in Fig. 1-4-1.

(4) Remove the flat wires from CN2 and CN3005 on the Main board assembly.

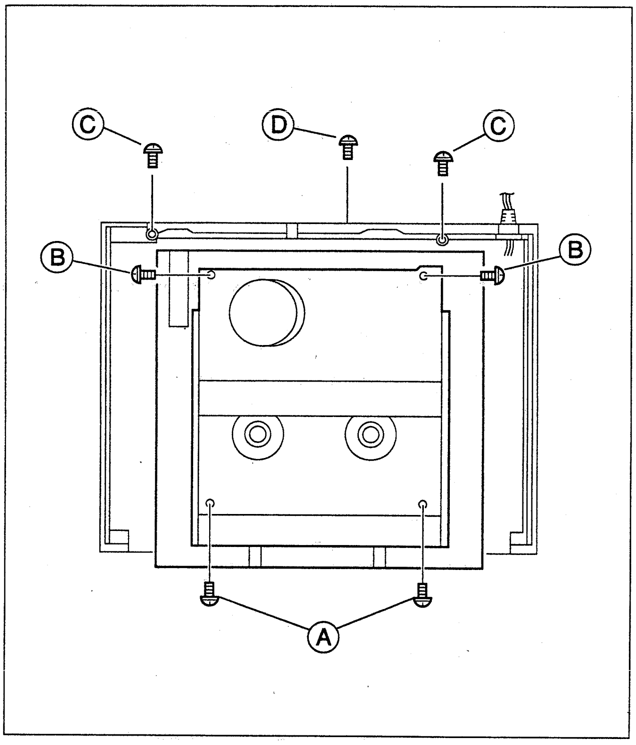


Fig. 1-4-1

(5) Take out 2 screws Ⓒ and take out 1 screw Ⓓ to install the Bottom cover (See Fig. 1-4-1).

(6) While holding the edge of the Main board, and remove the Main board and Main deck assemblies together. At this stage be careful of the power cord and prongs of the jacks on the back side (See Fig. 1-4-2).

(7) Remove the Display board assembly and REC safety board (See 1.3 DISASSEMBLY/ASSEMBLY METHOD), then place them on the front side of the Main deck assembly and Main board assembly which have been deassembled at the procedure (6), and connect the flat wires into CN2 and CN3005 of the Main board(See Fig. 1-4-3).

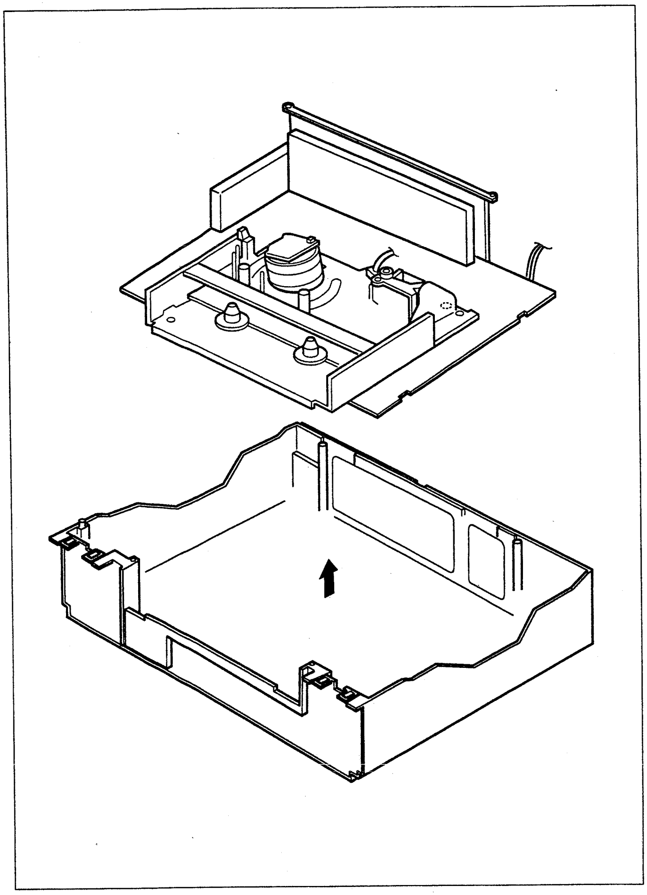


Fig. 1-4-2

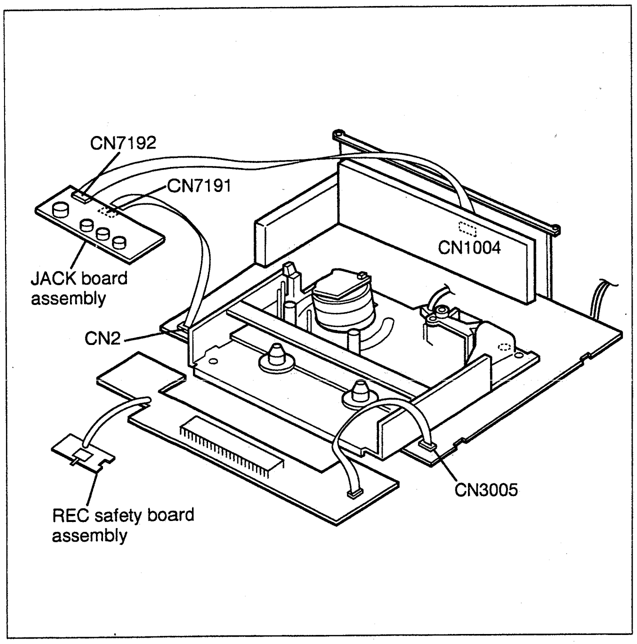


Fig. 1-4-3

(8) Connect the power cord to the wall socket, and lift the cassette holder.
(Before turning on the power make sure that there is nothing which may produce a short circuit, such as faulty soldering.)

1.4.2 Precautions for cassette loading in the "SERVICE POSITION"

The REC safety board assembly detects cassette loading as well as cassette tabs. Therefore, after the assembly has been removed in the "SERVICE POSITION", it is required to set the switch manually on the REC safety board assembly when a cassette is loaded.

1.4.3 Cassette loading and ejection methods in the "SERVICE POSITION" (See Fig. 1-4-3).

(1) Insert a cassette halfway in the Cassette holder assembly.
(2) Set the switch on the REC safety board assembly to ON (by pressing the switch).
(3) As soon as the cassette starts to be loaded, set the switch on the REC safety assembly to OFF (by releasing the switch).
(4) Now the desired operation (recording, playback, fast forward, rewind, etc.) is possible in this status (the status shown in Fig. 1-4-3).

NOTES:
- *When performing diagnostics of the tape playback or recording condition in the "SERVICE POSITION", enter the desired mode before turning the set upside down, and do not change the mode during diagnostics while the set is placed upside down. If you want to switch the mode, turn the set to the normal position (the status shown in Fig. 1-4-3).*
- *In the "SERVICE POSITION", the cassette tabs cannot be detected and recording becomes possible even with a cassette with broken tabs such as the alignment tape. Be very careful not to erase important tapes.*

(5) The switch on the REC safety board assembly does not have to be operated when ejecting a tape. But be sure to turn the set to the normal position before ejecting the tape.

1.5 MECHANISM SERVICE MODE

This model has a unique function to enter the mechanism into every operation mode without loading of any cassette tape. This function is called the "MECHANISM SERVICE MODE".

1.5.1 How to set the "MECHANISM SERVICE MODE"

(1) Disconnect VCR from AC.
(2) Connect TPGND and TP7001(TEST) on the Display board assembly with a jump wire.
(3) Connect VCR to AC.
(4) Set the power switch to ON.
(5) With lock levers ⒶⒷ on the left and right of the Cassette holder assembly pulled toward the front, slide the holder in the same direction as the cassette insertion direction. (For the positions of lock levers ⒶⒷ, refer to the "Procedures for Lowering the Cassette holder assembly" on pages 1-3 of 1.3 DISASSEMBLY/ASSEMBLY METHOD.)
(6) The cassette holder lowers and, when the loading has completed, the mechanism enters the desired mode.

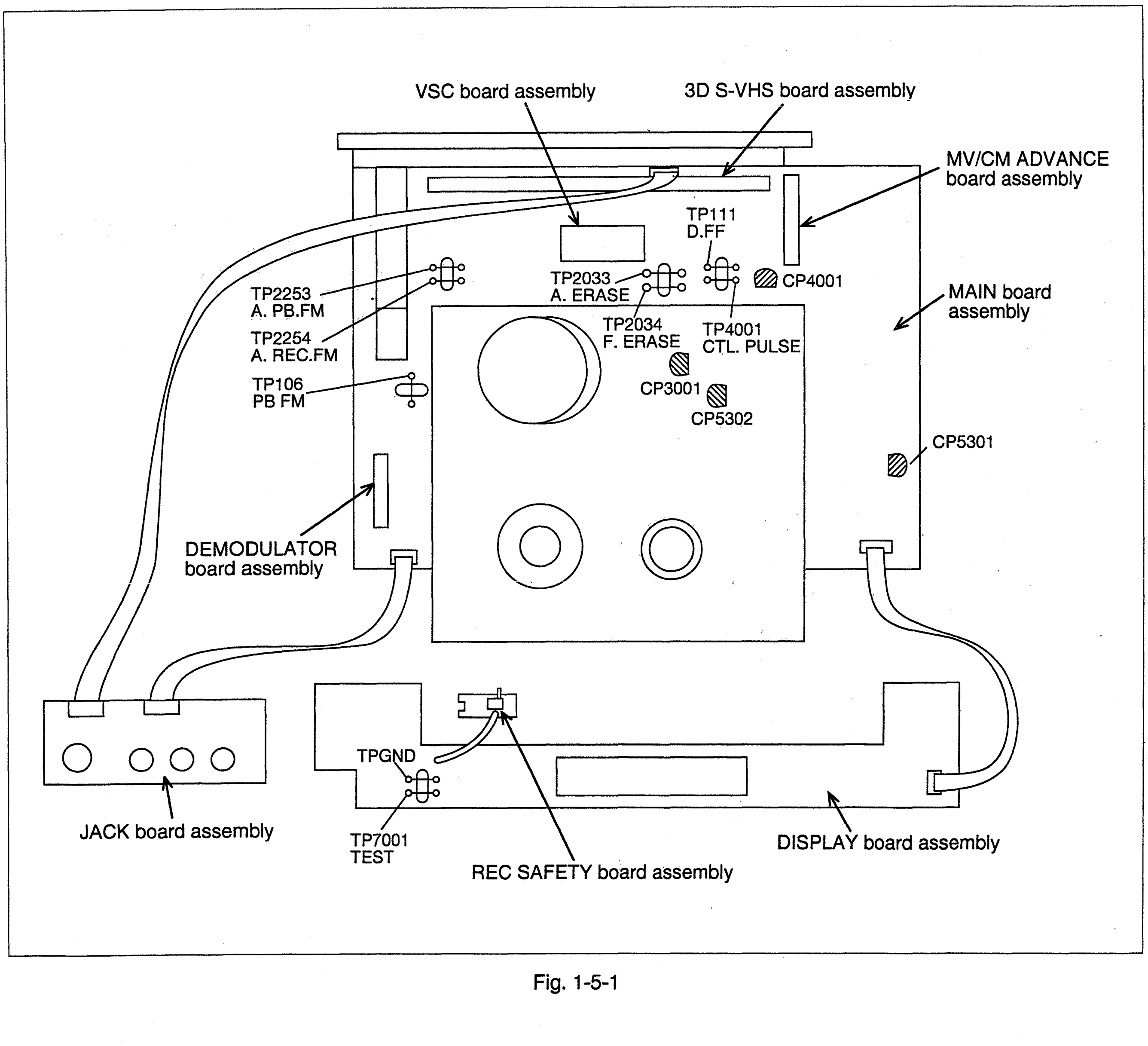

VSC board assembly
3D S-VHS board assembly
MV/CM ADVANCE board assembly
TP111 D.FF
TP2253 A. PB.FM
TP2254 A. REC.FM
TP2033 A. ERASE
CP4001
MAIN board assembly
TP2034 F. ERASE
TP4001 CTL. PULSE
TP106 PB FM
CP3001
CP5302
CP5301
DEMODULATOR board assembly
TPGND
JACK board assembly
TP7001 TEST
REC SAFETY board assembly
DISPLAY board assembly

Fig. 1-5-1

1.6 EMERGENCY DISPLAY FUNCTION

This product has the function to store the last two prévious emergency faults which can be displayed in the FDP when servicing.

1.6.1 How to display record of an emergency faults

Note: *Put the unit into A mode by using the VCR remote control. (When it is in B mode, the preset remote control codes are not accepted.)*

(1) Press "N" button of the presetting unit more than 2 seconds and the two previous emergency faults are shown in the LED or FDP.
(2) Press "N" button of the presetting unit again to return to the normal mode.

[Example] E : 01 : 03
Emergency fault before last
Emergency fault of the last time

[Example] E : – – : – – ← No record of emergency

1.6.3 How to clear emergency record

Press the COUNTER RESET button on the remote controller in the emergency record display mode, and the record of the emergency fault(s) is cleared.

1.6.2 Detail of emergency faults

EMG DATA	Symptom	Detect mode	Resulting mode
E : 01	Loading motor rotates for more than 8 Sec without shift to next mode.	Loading	POWER OFF
E : 02	Loading motor rotates for more than 8 Sec without shift to next mode.	Unloading	POWER OFF
E : 03	TU REEL FG input is absent. (for more than 4 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP → POWER OFF
E : 04	DRUM FF input is absent. (for more than 3 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP → POWER OFF
E : 06	CAPSTAN FG input is absent. (for more than 4 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP → POWER OFF
E : 07	No SWD5V/12V	POWER ON	POWER OFF
E : 08	Initialized action of DD (Dynamic Drum) is not complete for less than 4 seconds.	Connect VCR to AC	STOP
E : 09	DD drive motor is not rotate for more than 2.5 seconds.	on TIME SCAN	STOP

Table 1-6-1 EMERGENCY FAULTS

1.7 SYSCON CIRCUIT

1.7.1 Syscon CPU pin function (IC3001) 1/2

PIN NO.	LABEL	IN/OUT	NOTE
1	IND(L)	IN	AUDIO INPUT(LCH) FOR THE FDP AUDIO INDICATOR
2	IND(R)	IN	AUDIO INPUT(RCH) FOR THE FDP AUDIO INDICATOR
3	POWER DOWN	IN	DETECTION SIGNAL FOR POWER DOWN
4	INDEX	IN/OUT	DETECTION SIGNAL FOR SERVO INDEX
5	AVSS	-	GND FOR ANALOG CIRCUIT
6	TEST	-	GND
7	X2	-	TIMER CLOCK (32.768 KHz)
8	X1	-	TIMER CLOCK (32.768 KHz)
9	VSS	-	GND
10	OSC1	-	MAIN SYSTEM CLOCK (10 MHz)
11	OSC2	-	MAIN SYSTEM CLOCK (10 MHz)
12	RESET	-	RESET TERMINAL (RESET ON:L)
13	(NMI)	-	NC
14	BIL.SEL	-	NC
15	A EVENT DET	IN	BLANK AUDIO DETECT (DETECT ON:L) <MOVIE ADVANCE>
16	V.EVENT DET	IN	BLANK VIDEO DETECT (DETECT ON:L) <MOVIE ADVANCE>
17	FRONT (L)	OUT	SELECT SIGNAL FOR THE FRONT INPUT
18	BS P.CTL	-	NC
19	REAR(L)	-	NC
20	CONV.CTL	OUT	ON/OFF CONTROL SIGNAL FOR THE RF CONVERTER
21	CM_AD(H)	OUT	SELECT SIGNAL FOR "CM ADVANCE" OR "MV ADVANCE" (CM:H, MV:L)
22	ASKCTL	IN	CONTROL PULSE <MOVIE ADVANCE>
23	EV MASK	IN	EVENT LATCH PULSE <MOVIE ADVANCE>
24	A.EFFECT/J.CLOCK	-	NC
25	EDS(H)	OUT	EDS ON:H
26	TS BUSY	IN	BUSY SIGNAL ON THE BUS LINE FROM TIMER TO SUB
27	TS CS	OUT	CHIP SELECT SIGNAL ON THE BUS LINE FROM TIMER TO SUB
28	TM CLOCK	OUT	CLOCK SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
29	TM CS	OUT	CHIP SELECT SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
30	TM BUSY	IN	BUSY SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
31	TM DATA0	IN/OUT	DATA ON THE BUS LINE
32	TM DATA1	IN/OUT	DATA ON THE BUS LINE
33	TM DATA2	IN/OUT	DATA ON THE BUS LINE
34	TM DATA3	IN/OUT	DATA ON THE BUS LINE
35	TM DATA4	IN/OUT	DATA ON THE BUS LINE
36	TM DATA5	IN/OUT	DATA ON THE BUS LINE
37	TM DATA6	IN/OUT	DATA ON THE BUS LINE
38	TM DATA7	IN/OUT	DATA ON THE BUS LINE
39	H.REC(H)	OUT	HIFI AUDIO REC MODE CONTROL SIGNAL (REC:H)
40	N.REC(H)	OUT	NORMAL AUDIO REC MODE CONTROL SIGNAL(REC:H)

Table 1-7-1 SYSCON CPU pin function(1/2)

1.7.2 Syscon CPU pin function (IC3001) 2/2

PIN NO.	LABEL	IN/OUT	NOTE
41	MS_RESET	OUT	RESET SIGNAL FOR THE MECHANISM CONTROL IC(IC3301)
42	CNR_ON(H)	OUT	CNR ON SIGNAL(ON:H)
43	TU DATA	OUT	TUNING DATA
44	TU_MUTE(H)	OUT	TUNER MUTE SIGNAL (MUTE:H)
45	REMOCON	OUT	C. BOX OUTPUT
46	TU CE	OUT	CHIP ENABLE OF THE TUNER UNIT
47	TU CLOCK	OUT	CLOCK FOR DATA TRANSFER TO THE TUNER UNIT
48	RF_CH_SEL	-	NC
49	COMPU OUT	OUT	A/V COMPULINK OUTPUT
50	RCIN	IN	DATA INPUT OF THE REMOTE CONTROL UNIT
51	R.PAUSE	IN	REMOTE PAUSE CONTROL
52	CHUPDN(H)/FULL_E_ON	OUT	FULL ERASE HEAD ON
53	HOLD(H)/V.SYNC/INSERT(L)	OUT	AUDIO DUBBING (DUBBING ON:L)
54	CS2	OUT	ON SCREEN WITH EDS CHIP SELECT
55	A.MUTE(H)	OUT	AUDIO MUTE CONTROL (MUTE:H)
56	OSD CS	OUT	CHIP SELECT FOR THE ON-SCREEN IC
57	S2-OUT	OUT	SERIAL DATA TRANSFER OUTPUT FROM THE FDP DRIVER TO THE ON-SCREEN IC
58	S2-IN	IN	SERIAL DATA TRANSFER OUTPUT FROM THE ON-SCREEN IC TO FDP DRIVER
59	S2-CLK	OUT	SERIAL DATA TRANSMISSION CLOCK FROM THE FDP DRIVER TO THE ON-SCREEN IC
60	TITLE_REC	-	NC
61	STB	OUT	PERMISSION SIGNAL FOR CLOCK OUTPUT (STROBE SIGNAL)
62	P.MUTE(L)	OUT	PICTURE MUTE CONTROL (MUTE:L)
63	VCC	-	SYSTEM POWER
64	SQREC(L)	OUT	SVHS REC MODE:L
65	LBX(H)/CARR	OUT	CARRIER OF THE CABLE BOX
66	LOCK(L)	IN	TUNING PLL LOCK DETECT:L
67	CTL_CLOCK	IN	LINEAR TIME COUNTER INPUT
68	BS_ANT.CTL	-	NC
69	I2C DATA	IN/OUT	SERIAL DATA TRANSFER OUTPUT FOR EE PROM
70	I2C CLOCK	IN/OUT	SERIAL DATA TRANSMISSION CLOCK FOR EE PROM
71	D.FF	IN	ROTATION DETECTION SIGNAL FOR DRUM MOTOR/TIMING CONTROL SIGNAL FOR REC
72	AVCC	-	SYSTEM POWER FOR ANALOG CIRCUIT
73	SHTLB	-	NC
74	SHTL(L)/SHTLA	-	NC
75	JSA	-	NC
76	JSB	-	NC
77	SYNC_DET	IN	DETECTION OF VIDEO SYNC SIGNAL (DETECTED:H)
78	WA DET/REC LEVEL V	IN	DETECTION OF WIDE ASPECT SWITCH
79	AFT	IN	"WITH THE TUNER RECEIVE, SYNCHRONIZE WITH CENTER (ANALOG VALUE:0-5V)"
80	TU LED	-	NC

Table 1-7-2 SYSCON CPU pin function(2/2)

1.7.3 Syscon CPU pin function (IC3301) 1/2

PIN NO.	LABEL	IN/OUT	NOTE
1	A.ENV/ND(L)	IN	INPUT THE AVERAGE OF FMA PLAYBACK SIGNAL-A (AUTO TRACKING AND FMA NON-RECORD DETECTION)
2	VIDEO ENV	IN	AUTO TRACKING DETECT/INPUT THE AVERAGE OF PLAYBACK VIDEO SIGNAL
3	6.5H DET	IN	6.5H DETECTION SIGNAL FOR SERVO CIRCUIT
4	REC SF	IN	DETECTION SIGNAL FOR REC SAFETY/CASSETTE INSERT SWITCH
5	AVSS	-	GND FOR ANALOG CIRCUIT
6	TEST	-	GND
7	X2	-	NC
8	X1	-	NC
9	VSS	-	GND
10	OSC1	-	MAIN SYSTEM CLOCK (10MHZ)
11	OSC2	-	MAIN SYSTEM CLOCK (10MHZ)
12	MS_RESET	-	RESET TERMINAL (RESET ON:L)
13	(NMI)	-	NC
14	LSC	IN	MECHANISM MODE DETECT SWITCH (C)
15	LSB	IN	MECHANISM MODE DETECT SWITCH (B)
16	LSA	IN	MECHANISM MODE DETECT SWITCH (A)
17	PAL DET	-	NC
18	E06	OUT	SWITCHING SIGNAL FOR CAPSTAN DRIVE VOLTAGE
19	S.SENS	IN	START SENSOR
20	E.SENS	IN	END SENSOR
21	I2C CLOCK	OUT	SERIAL DATA TRANSFER CLOCK FOR MEMORY IC
22	TU FG	IN	DETECTION SIGNAL FOR TAKE-UP REEL ROTATION/TAPE REMAIN
23	SUP FG	IN	DETECTION SIGNAL FOR SUPPLY REEL ROTATION/TAPE REMAIN
24	CTL CLOCK	IN	CONTROL PULSE INPUT
25	I2C DATA	IN/OUT	I/O DATA FOR MEMORY IC
26	LCM1	OUT	MODE MOTOR DRIVE CONTROL
27	LCM2	OUT	MODE MOTOR DRIVE CONTROL
28	LCM3	OUT	MODE MOTOR DRIVE CONTROL
29	TM CS	IN	CHIP SELECT SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
30	TM CLOCK	IN	CLOCK SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
31	SLOW P/PAL_EP_CTL	OUT	RECEIVING TIMING OUTPUT OF SPECIAL PLAYBACK PICTURE
32	LP SHORT(H)	-	NC
33	SP SHORT(H)	-	NC
34	TM DATA7	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
35	TM DATA6	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
36	TM DATA5	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
37	TM DATA4	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
38	TM DATA3	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
39	TM DATA2	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
40	TM DATA1	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL

Table 1-7-3 SYSCON CPU pin function(1/2)

1.7.4 Syscon CPU pin function (IC3301) 2/2

PIN NO.	LABEL	IN/OUT	NOTE
41	TM DATA0	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
42	TM BUSY	OUT	BUSY SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
43	N REC START(H)	OUT	NORMAL AUDIO SOUND RECORDING START
44	H REC START(L)	OUT	HIFI AUDIO SOUND RECORDING START
45	VPCTL	OUT	"V.PULSE CONTROL, V COMPENSATION DURING SPECIAL PLAYBACK"
46	P.CTL(H)	OUT	CONTROL SIGNAL FOR SW POWER SUPPLY
47	EE(L)	OUT	EE/PB CONTROL (EE MODE:L)
48	FLY E ON(H)	OUT	FLYING ERASE ON:H
49	VSC CLOCK	OUT	SERIAL DATA TRANSFER CLOCK OUTPUT FOR VSC IC
50	VSC DATA	OUT	SERIAL DATA OUTPUT FOR VSC IC
51	V.STB(L)/RY-REV(L)	OUT	VIDEO STB ON:L
52	CTL C/D	IN	DETECTION SIGNAL FOR CONTROL PULSE MODE/TAPE RUNNING/BLANK
53	DDFG	IN	DYNAMIC DRUM FG INPUT
54	DDSPDCTL	OUT	DYNAMIC DRUM SPEED CONTROL
55	DDCREV	OUT	DYNAMIC DRUM CONTROL (REVERS)
56	DDCFWD	OUT	DYNAMIC DRUM CONTROL (FORWARD)
57	VIDEO DATA	-	NC
58	SP(L)	OUT	SP MODE:L
59	VIDEO CLK	-	NC
60	DE EMPH CTL	-	NC
61	V.UP(H)	-	NC
62	TRICK	OUT	SPECIAL PLAYBACK:H
63	VCC	-	SYSTEM POWER
64	CONVERT(L)/SLOW_REV	OUT	PRO SLOW CONTROL
65	1/2_EP/3.58NTSC	OUT	PRO SLOW CONTROL
66	S_DATA	OUT	SERVO SERIAL DATA OUTPUT
67	CAP REV(L)	OUT	CAPSTAN MOTOR REVERSE CONTROL (FWD:H/REV:L)
68	DUTY I/O	IN/OUT	DETECTION SIGNAL FOR INDEX DATA
69	CAP FG	IN	DETECTION SIGNAL FOR MODE/TAPE RUNNING/BLANK
70	PAUSE(L)	OUT	STOP CONTROL SIGNAL FOR CAPSTAN MOTOR
71	D.FF	IN	ROTATION DETECTION SIGNAL FOR DRUM MOTOR/TIMING CONTROL SIGNAL FOR REC
72	AVCC	-	SYSTEM POWER FOR ANALOG CIRCUIT
73	SCASS	IN	DETECTION SIGNAL FOR S CASSETTE TAPE
74	SB-G	OUT	VOLTAGE CONTROL SIGNAL FOR VIDEO FREQUENCY RESPONSE
75	DRUM V	OUT	VOLTAGE CONTROL SIGNAL FOR DRUM MOTOR DRIVE
76	CAP V	OUT	VOLTAGE CONTROL SIGNAL FOR CAPSTAN MOTOR SPEED
77	DD ABS	IN	DYNSMIC DRUM POSITION DETECT
78	S(H)	OUT	S-VHS MODE:H
79	HEAD.SEL	OUT	HEAD SELECT (EP HEAD:H/SP HEAD:L)
80	PROTECT	IN	DETECTION SIGNAL FOR SW POWER SUPPLY

Table 1-7-4 SYSCON CPU pin function(2/2)

SECTION 2
MECHANISM ADJUSTMENT

2.1 BEFORE STARTING REPAIR AND ADJUSTMENT

2.1.1 Precautions

(1) Unplug the power cable of the main unit before using your soldering iron.
(2) Take care not to cause any damage to the conductor wires when plugging and unplugging the connectors.
(3) Do not randomly handle the parts without identifying where the trouble is.
(4) Exercise enough care not to hurt yourself, especially your finger nails, during the repair work.
(5) When installing the front panel assembly, be sure to hook the lug on the back side of cassette door to the door opener of the cassette holder. If this operation is neglected it will not be possible to remove the cassette when ejecting because the housing door cannot be opened.

2.1.2 Checking for Proper Mechanical Operations

Enter the mechanism service mode when you want to operate the mechanism when no cassette is loaded. (See 1.5 MECHANISM SERVICE MODE)

2.1.3 Manually Removing the Cassette Tape

1. In case of electrical failures

If you cannot remove the cassette tape which is loaded because of any electrical failure, manually remove it by taking the following steps.

(1) Unplug the power cable and remove the top cover, bracket and front panel assembly. (See 1.3 DISASSEMBLY/ASSEMBLY METHOD)
(2) Unload the cassette by manually turning the unloading motor of the main deck assembly toward the front. In doing so, hold the tape by the hand to keep the slack away from any grease. (See Fig.2-1-1)
(3) Bring the pole base assembly (on the supply or take-up side) to a pause when it reaches the position where it is hidden behind the cassette tape.
(4) Move the top plate toward the drum while holding down the lug Ⓐ of the bracket retaining the top plate. Likewise hold part Ⓑ down and remove the top plate. The spring plate Ⓒ is then brought under the cassette lid. Then remove the top plate by pressing the whole cassette tape down. (Note 1) (See Fig.2-1-2).
(5) Remove the cassette tape by holding both the slackened tape and the cassette lid.
(6) Take up the slack of the tape into the cassette. This completes removal of the cassette tape.

Note: *The spring plate of the top plate is sharp-edged. Take care not to hurt yourself.*

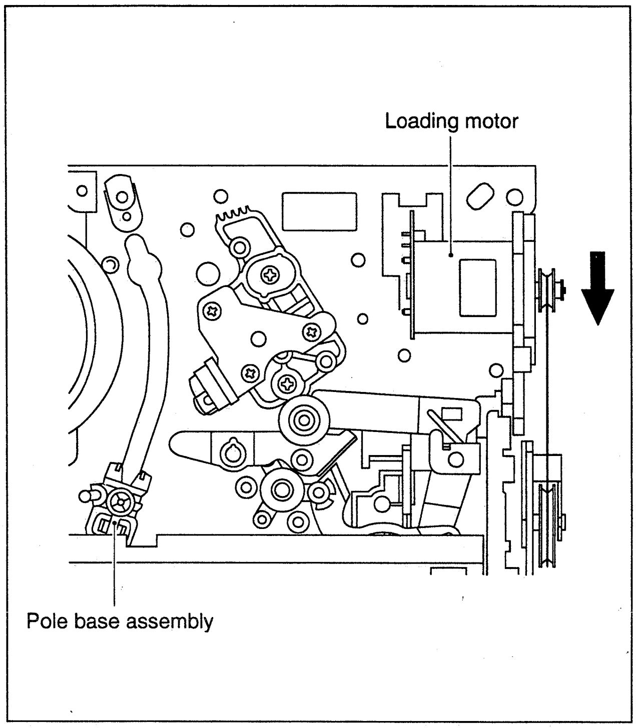


Fig. 2-1-1

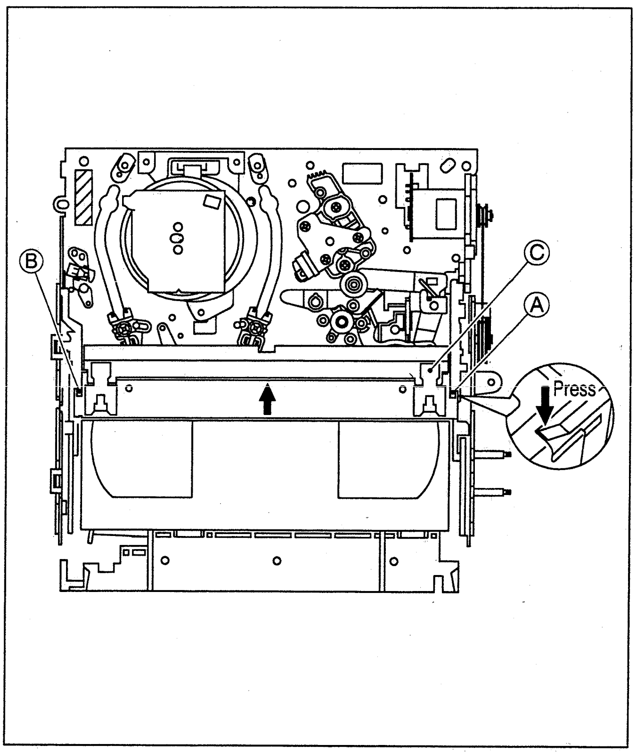


Fig. 2-1-2

2. In case of mechanical failure

If you cannot remove the cassette tape which is loaded because of any mechanical failure, manually remove it by taking the following steps.

(1) Unplug the power cable and remove the top cover, bracket and front panel assembly (See 1.3 DISASSEMBLY/ASSEMBLY METHOD).

(2) While keeping the tension arm of the main deck assembly free from tension, pull the tape on the pole base assembly out of the guide roller (on the supply or take-up side) (See Fig.2-1-3).

(3) Remove the top plate as done in Step (4) of "1 In case of electrical failures" and remove the guide pole cap at the same time. (See Fig.2-1-4).

(4) While lifting the cassette tape lid, hold the cassette tape case and pinch roller by the fingers and move them toward the loading motor to relieve pressure on the tape. Then remove the tape while taking the cassette case out of the cassette holder. (See Fig.2-1-4).

(5) Re-place the guide pole cap and take up the slack of the tape into the cassette.

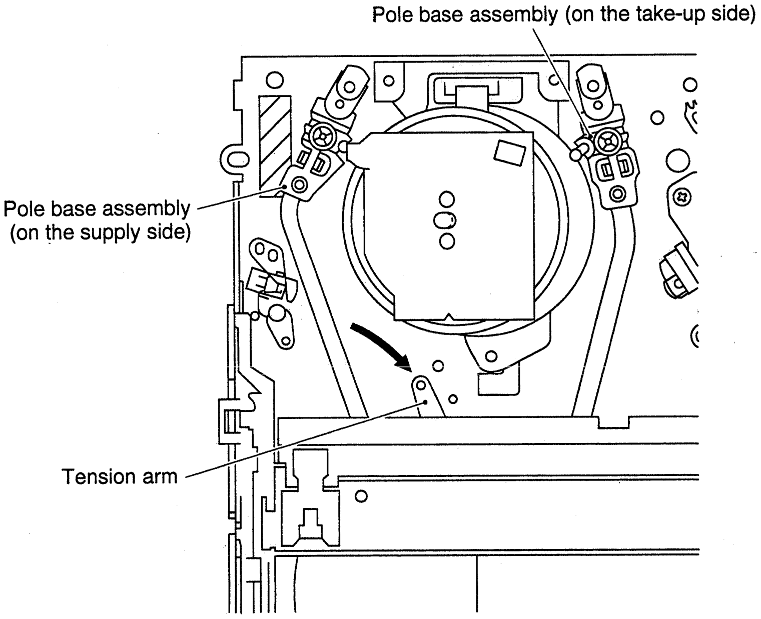

Pole base assembly (on the take-up side)
Pole base assembly (on the supply side)
Tension arm

Fig. 2-1-3

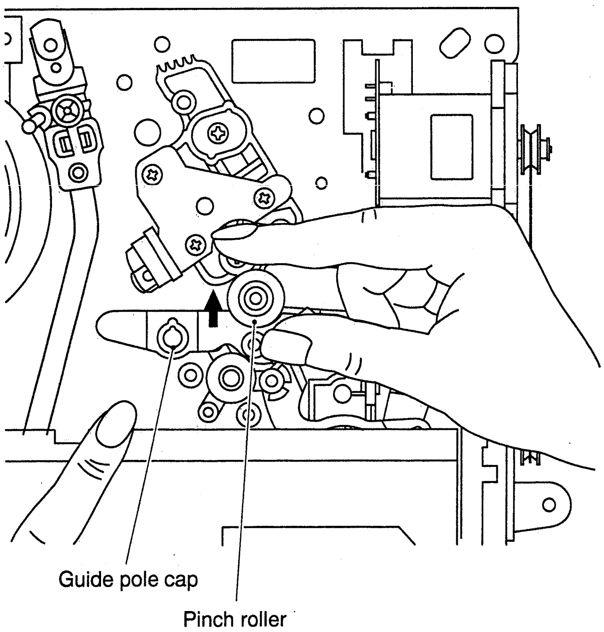

Guide pole cap
Pinch roller

Fig. 2-1-4

2.1.4 Jigs and Tools Required for Adjustment

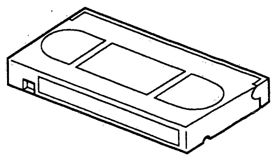
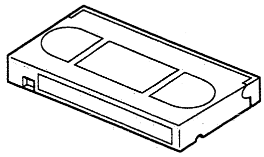
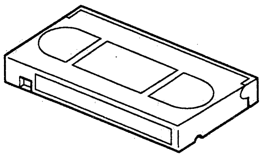
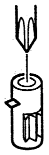
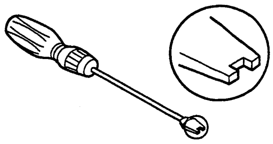
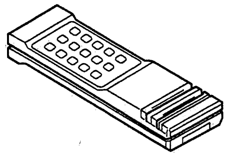
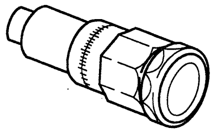
Alignment tape (SP) MHP	Alignment tape (EP) MHP-L	Back tension cassette gauge PUJ48076-2	A/C head position bit PTU94010
			
Roller driver PTU94002	Presetting unit PTU94008	Torque gauge PUJ48075-2	
			

Table 2-1-1 Jigs and tools required for adjustment

2.1.5 Maintenance and Inspection

1. Location of major mechanical parts

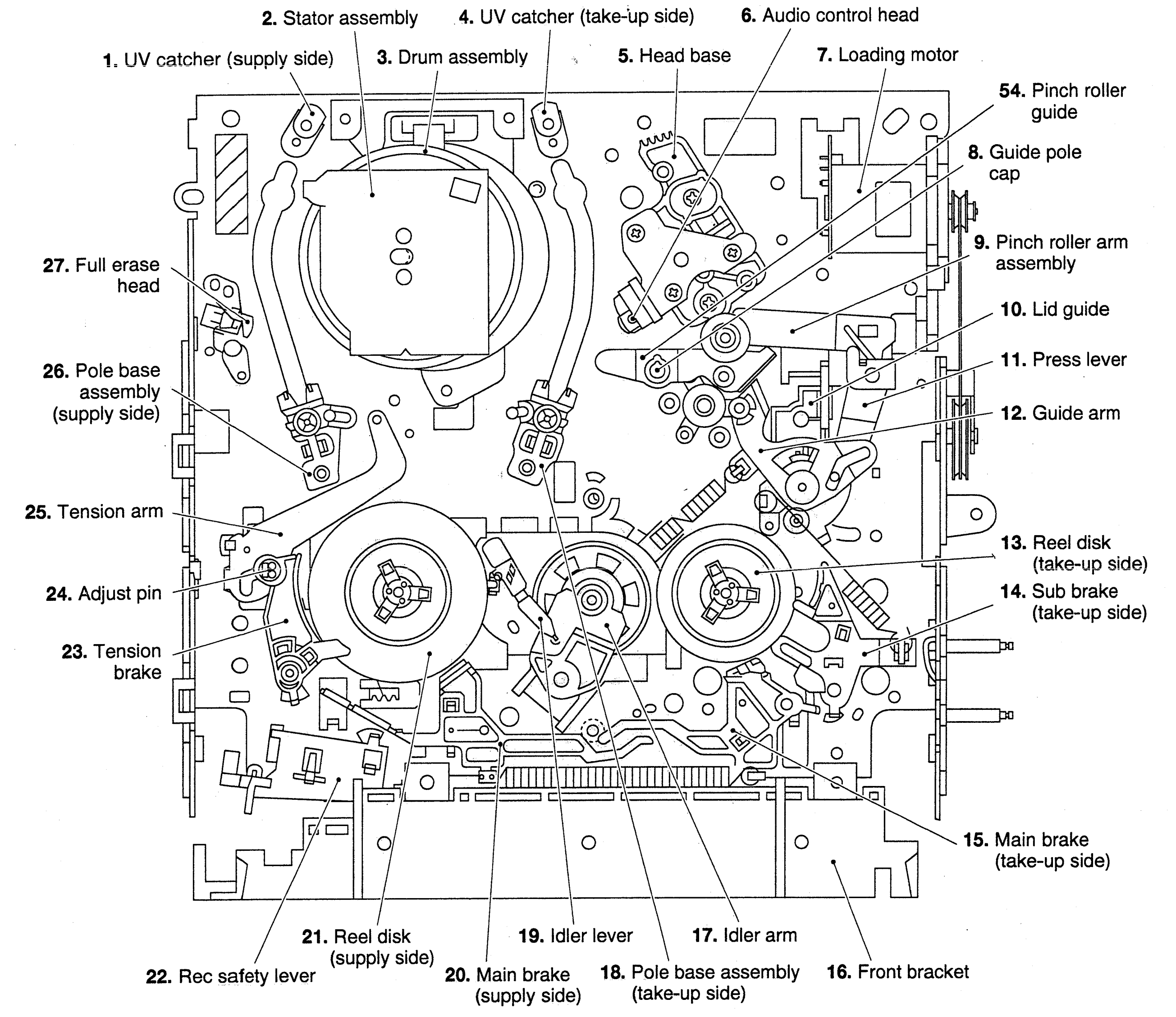
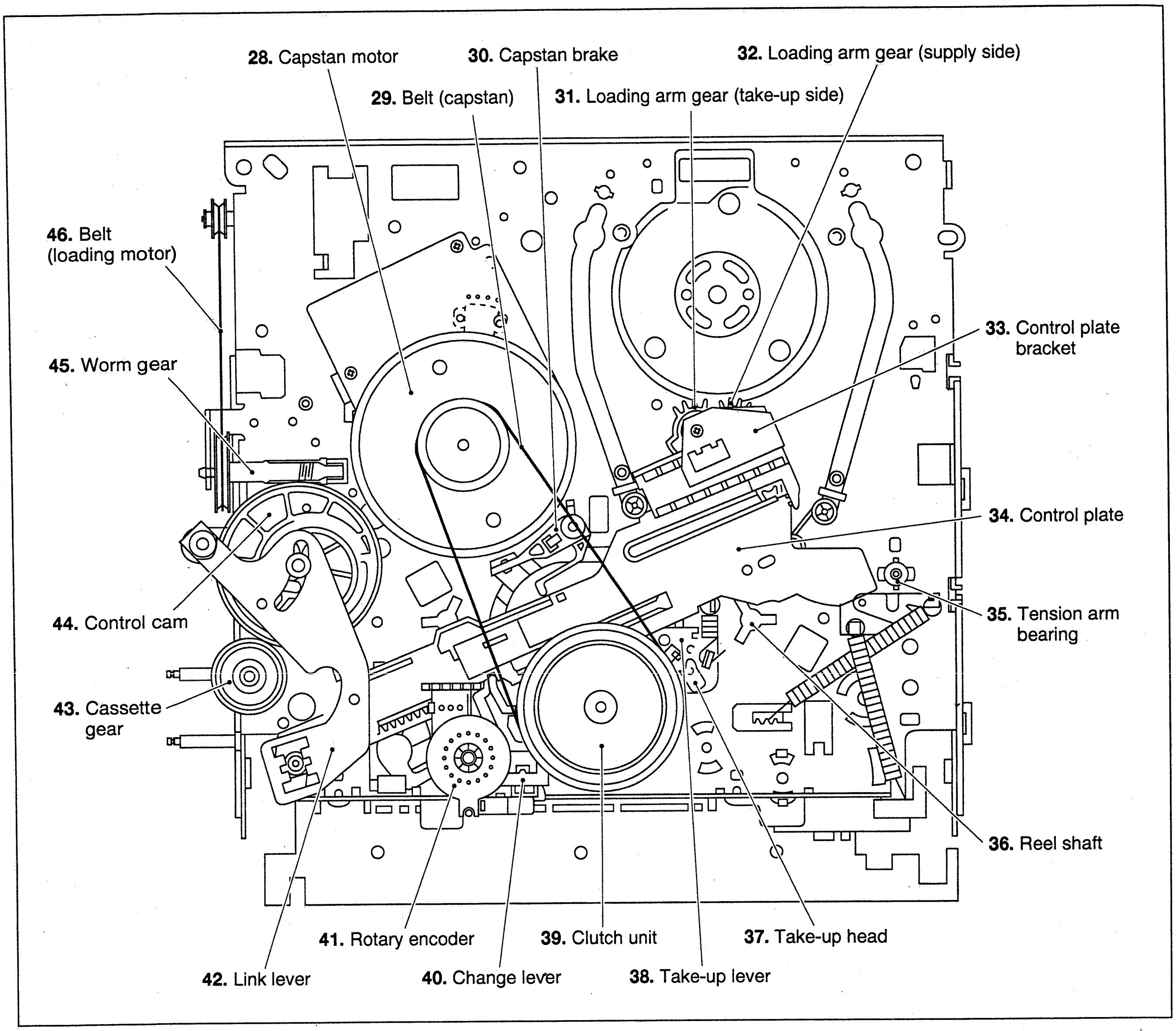
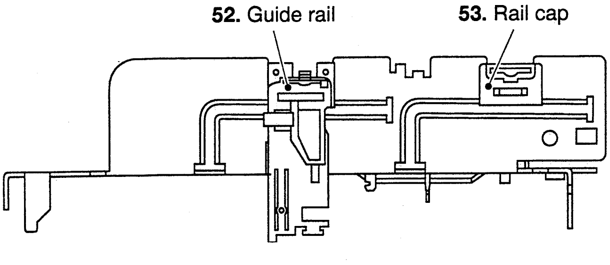

2. Stator assembly
4. UV catcher (take-up side)
6. Audio control head
1. UV catcher (supply side)
3. Drum assembly
5. Head base
7. Loading motor
54. Pinch roller guide
8. Guide pole cap
9. Pinch roller arm assembly
10. Lid guide
11. Press lever
12. Guide arm
13. Reel disk (take-up side)
14. Sub brake (take-up side)
15. Main brake (take-up side)
16. Front bracket
17. Idler arm
18. Pole base assembly (take-up side)
19. Idler lever
20. Main brake (supply side)
21. Reel disk (supply side)
22. Rec safety lever
23. Tension brake
24. Adjust pin
25. Tension arm
26. Pole base assembly (supply side)
27. Full erase head

Fig. 2-1-5 Main deck top side



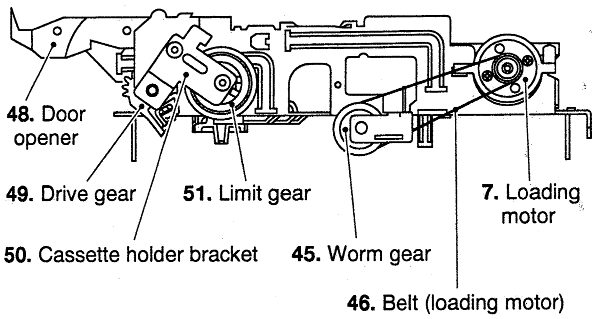
28. Capstan motor
30. Capstan brake
32. Loading arm gear (supply side)
29. Belt (capstan)
31. Loading arm gear (take-up side)
46. Belt (loading motor)
45. Worm gear
33. Control plate bracket
34. Control plate
35. Tension arm bearing
44. Control cam
43. Cassette gear
36. Reel shaft
41. Rotary encoder
39. Clutch unit
37. Take-up head
42. Link lever
40. Change lever
38. Take-up lever

Fig. 2-1-6 Main deck bottom side



52. Guide rail
53. Rail cap

Fig. 2-1-7 Main deck left side



48. Door opener
49. Drive gear
51. Limit gear
7. Loading motor
50. Cassette holder bracket
45. Worm gear
46. Belt (loading motor)

Fig. 2-1-8 Main deck right side

Note: *Numerals at the start of the parts names are identical with those of the location diagrams of the major mechanical parts, 1 - 18 of which denote the order of removal. Of the alphabets T and B next to the parts names, T denotes removal from the main deck top side, B from the bottom side and T/B from both sides.*

			1,4	12	53	46	9	52	11	50	–	–	–	49	32	–	–	38	25	23	31	16	21	42	41	29	39	40	33	34	14	19
	Removable parts names Replacement parts names		UV catcher	Guide arm assembly	Rail cap	Belt (loading motor)	Pinch roller arm assembly	Guide rail	Press lever assembly	Cassette Holder bracket	Opener guide	Relay gear	Cassette holder assembly	Drive gear	Loading arm gear (supply side)	Drive arm assembly	Tension spring	Take-up lever	Tension arm assembly	Tension brake assembly	Loading arm gear (take-up side)	Front bracket	Reel base (supply side)	Link lever	Rotary encoder	Belt (capstan motor)	Clutch unit	Change lever	Control plate bracket	Control plate	Sub brake	Idler lever
17	Idler arm	T			1			2		3	4	5	6	7		8				9			10	11	12	13	14	15	16	17		18
15	Main brake (take-up side)	T/B			1			2		3	4	5	6	7		8						9		10	11	12	13	14	15	16	17	
13	Reel disk (take-up side)	T			1			2		3	4	5	6	7		8						9		10	11	12	13	14	15	16	17	
19	Idler lever	T/B			1			2		3	4	5	6	7		8				9			10	11	12	13	14	15	16	17		
–	Rotary encoder guide	T/B			1			2		3	4	5	6	7		8						9		10	11	12	13	14	15	16	17	
14	Sub brake (take-up side)	T/B			1			2		3	4	5	6	7		8						9		10	11	12	13	14	15	16		
–	Loading arm gear shaft	B													8						9			1	2	3	4	5	6	7		
35	Tension arm bearing	T			1			2		3	4	5	6				8		9	7												
–	Control plate guide	T/B																8						1	2	3	4	5	6	7		
37	Take-up head	B																8						1	2	3	4	5	6	7		
31	Loading arm gear (take-up side)	B													8									1	2	3	4	5	6	7		
25	Tension arm assembly	T/B			1			2		3	4	5	6				8			7												
20	Main brake (supply side)	T/B			1			2		3	4	5	6	7		8																
38	Take-up lever	T/B																						1	2	3	4	5	6	7		
32	Loading arm gear (supply side)	B																						1	2	3	4	5	6	7		
21	Reel disk (supply side)	T			1			2		3	4	5	6	7																		
–	Drive arm assembly	T			1			2		3	4	5	6	7																		
30	Capstan brake	T/B																						1	2	3	4	5	6	7		
34	Control plate	B																						1	2	3	4	5	6			
23	Tension brake assembly	T/B			1			2		3	4	5	6																			
–	Cassette holder assembly	T			1			2		3	4	5																				
–	Direct gear	B																							1	2	3	4				
10	Lid guide	T		1			2		3																							
40	Change lever	B																							1	2	3					
49	Drive gear	T								1	2	3																				
11	Press lever assembly	T		1			2																									
–	Relay gear	T								1	2																					
51	Limit gear assembly	T								1	2																					
26	Pole base assembly (supply side)	T/B	1																													
18	Pole base assembly (take-up side)	T/B	1																													
–	Tension spring (Main brake)	T																				1										
22	Rec safety lever	T/B																				1										
28	Capstan motor	T/B																								1						
45	Worm gear	B				1																										
44	Control cam	B																						1								
43	Cassette gear	B																						1								
39	Clutch unit	B																								1						
9	Pinch roller arm assembly	T		1																												
–	Opener guide	T								1																						
8	Guide pole cap	T																														
54	Pinch roller guide	T																														
1,4	UV catcher	T																														
42	Link lever	B																														
41	Rotary encoder	B																														
12	Guide arm assembly	T																														
50	Cassette holder bracket	T																														
52	Guide rail	T																														
53	Rail cap	T																														
7	Loading motor assembly	T																														
5	A/C head assembly	T																														

2. Cleaning

Regular cleaning of the transport system parts is desirable but practically impossible. So make it a rule to carry out cleaning of the tape transport system whenever the machine is serviced.

When the video head, tape guide and/or brush get soiled, the playback picture may appear inferior or at worst disappear, resulting in possible tape damage.

(1) When cleaning the upper drum (especially the video head), soak a piece of closely woven cloth or Kimu-wipe with alcohol and while holding the cloth onto the upper drum by the fingers, turn the upper drum counterclockwise.

Note: *Absolutely avoid sweeping the upper drum vertically as this will cause damage to the video head.*

(2) To clean the parts of the tape transport system other than the upper drum, use a piece of closely woven cloth or a cotton swab soaked with alcohol.

(3) After cleaning, make sure that the cleaned parts are completely dry before using the video tape.

3. Lubrication

With no need for periodical lubrication, you have only to lubricate new parts after replacement. If any oil or grease on contact parts is soiled, wipe it off and newly lubricate the parts.

(1) See the mechanism assembly and disassembly diagrams (M4) for the lubricating or greasing spots. See Table 2-1-2 for the types of oil or grease to be used.

Type	Name	Serial No.	Symbols on the disassembly diagrams
Grease	Maltemp SH-P	KYODO-SH-P	AA
Oil	Cosmohydro HV56	COSMO-HV56	BB

Table 2-1-2 Grease and oil used for the unit

4. Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning,lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions.However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary. Also note that rubber parts may deform in time,even if the set is not used.

System	Parts Name	Operation Hours	
		~1000H	~2000H
Tape transport	Upper drum assembly	★○	○
	A/C head	★○	★○
	Lower drum assembly	★	★○
	Pinch roller arm assembly	★	★
	Full erase head	★	★
	Tension arm assembly	★	★
	Capstan motor (Shaft)	★	★
	Guide arm assembly	★	★
Drive	Capstan motor		○
	Capstan brake		○
	Main brake		○
	Belt (Capstan)	○	○
	Belt (Loading motor)		○
	Loading motor		○
	Clutch unit		○
	Worm gear assembly		○
	Control plate		○
Other	Brush assembly	★○	★○
	Tension brake	○	○
	Rotary encoder		○

★: Cleaning

○: Inspection or Replacement if necessary

Table 2-1-3

2.2 REPLACEMENT OF MAJOR PARTS

2.2.1 Before Starting Disassembling

This unit is provided with a mechanism assembly mode. It is therefore necessary to enter this mode for assembling and disassembling procedures.
This mode is usually not in use, manually set it when it is required.

2.2.2 How to Set the Mechanism Assembling Mode

Remove the main deck assembly and place it bottom side up. (See SECTION 1 DISASSEMBLY). Turn the worm gear toward the front so that the register hole of the control cam is brought into alignment with the hole at the main deck assembly chassis. This position renders the mechanism assembling mode operational. Make sure that the control plate is located in alignment with the mark E. (See Fig.2-2-1)

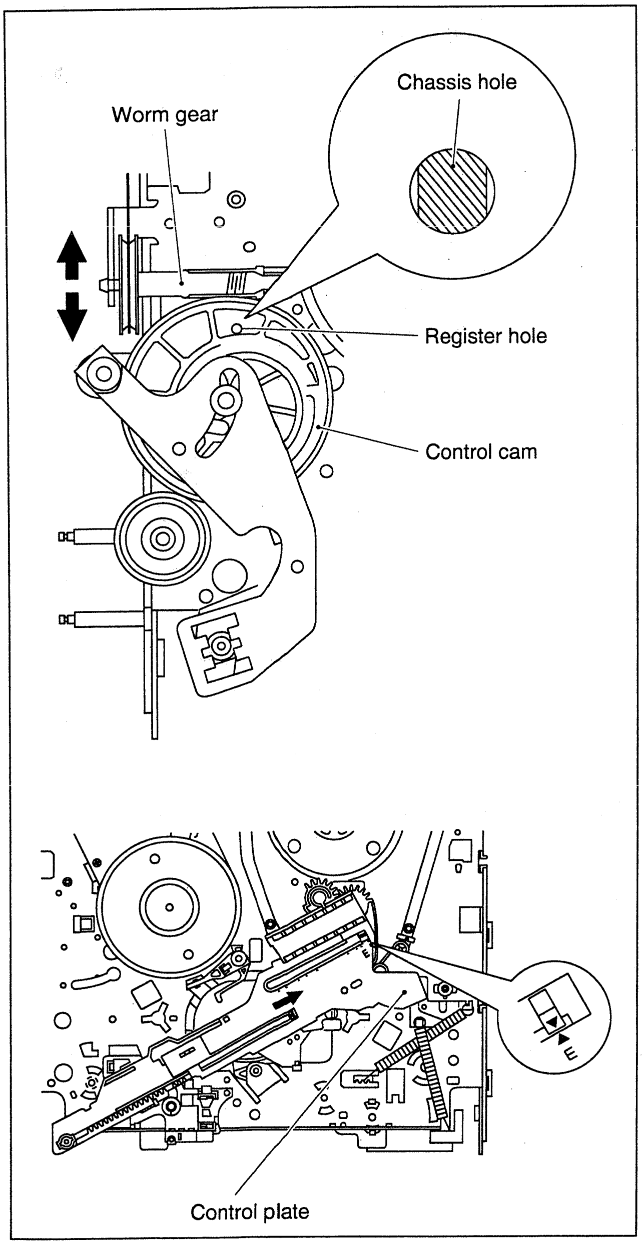

Chassis hole
Worm gear
Register hole
Control cam
E
Control plate

Fig. 2-2-1

2.2.3 Cassette Holder Assembly

1. How to remove

(1) Remove the guide rail and rail cap. (See Fig.2-2-2).
(2 lugs on the guide rail and one lug on the rail cap)

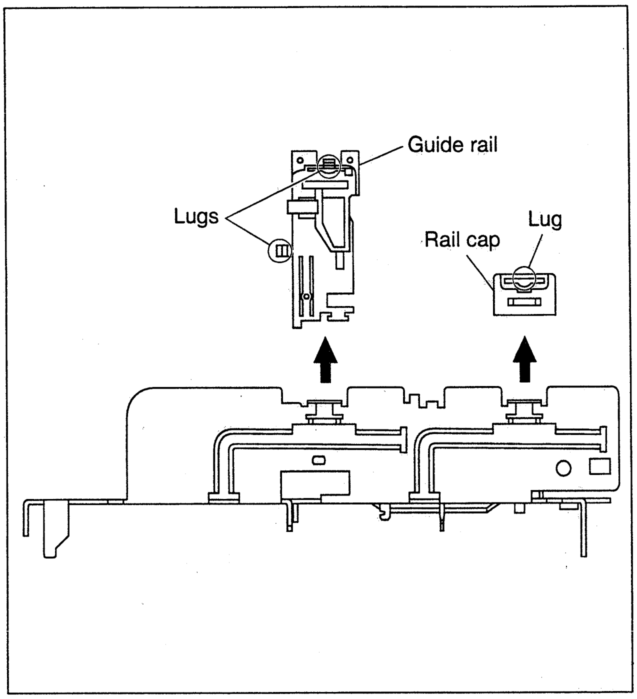

Guide rail
Lugs
Lug
Rail cap

Fig. 2-2-2

(2) Remove the two slit washers and remove the cassette holder bracket. (See Fig.2-2-3)

(3) Remove the opener guide, relay gear and limit gear. (See Fig.2-2-3)

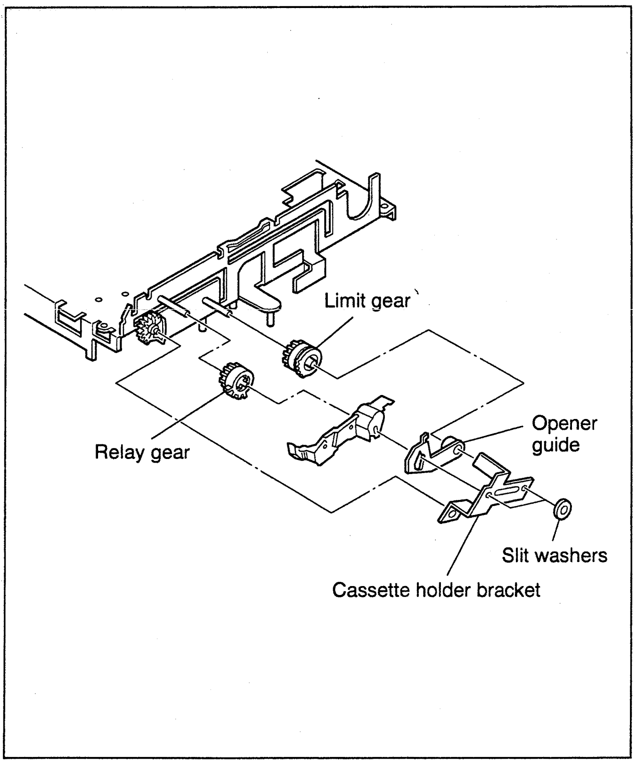

Limit gear
Opener guide
Relay gear
Slit washers
Cassette holder bracket

Fig. 2-2-3

(4) While swinging the lock levers (R) and (L) of the cassette holder assembly toward the front, slide the cassette holder assembly until its legs come to where the guide rail and the rail cap have been removed (so that the drive arm is upright). (See Fig.2-2-4)

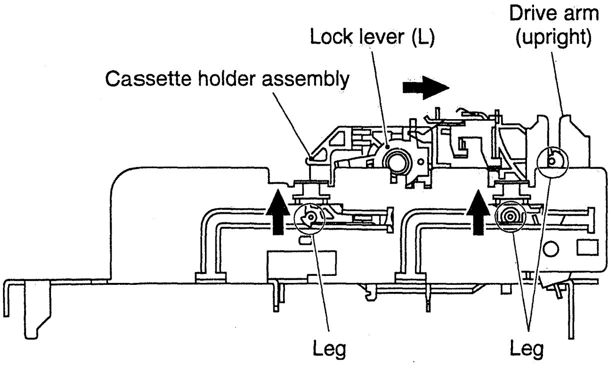

Drive arm
(upright)
Lock lever (L)
Cassette holder assembly
Leg
Leg

Fig. 2-2-4

(5) While holding the left side of the cassette holder, lift the cassette holder assembly so that the three legs on the left side are all released. Then pull the legs Ⓐ and Ⓑ on the right side out of the rail and also pull up the leg Ⓒ. (See Fig.2-2-5, Fig.2-2-6)

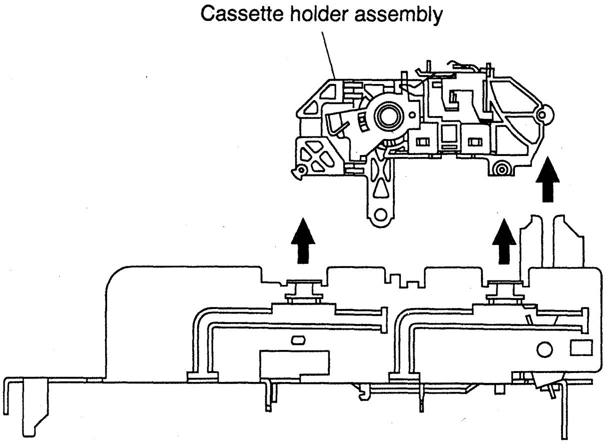

Cassette holder assembly

Fig. 2-2-5

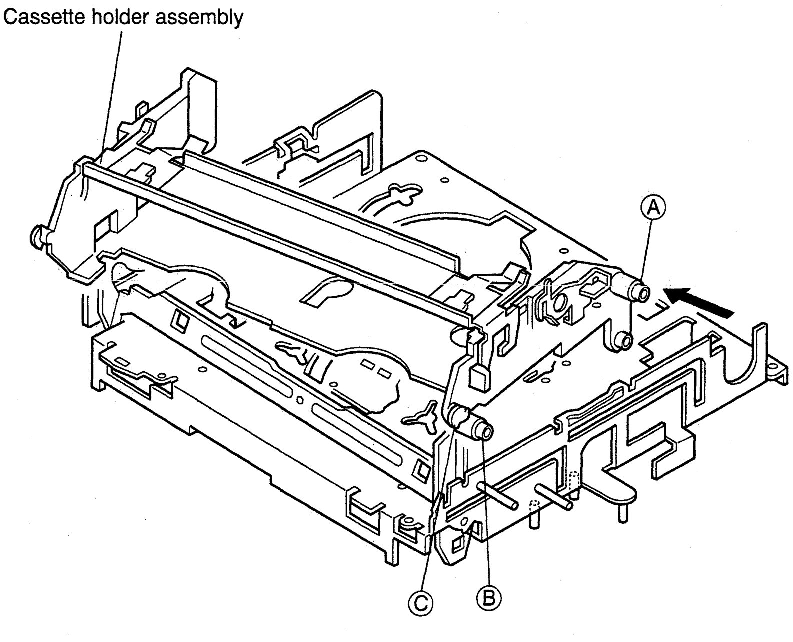

Cassette holder assembly
Ⓐ
Ⓒ
Ⓑ

Fig. 2-2-6

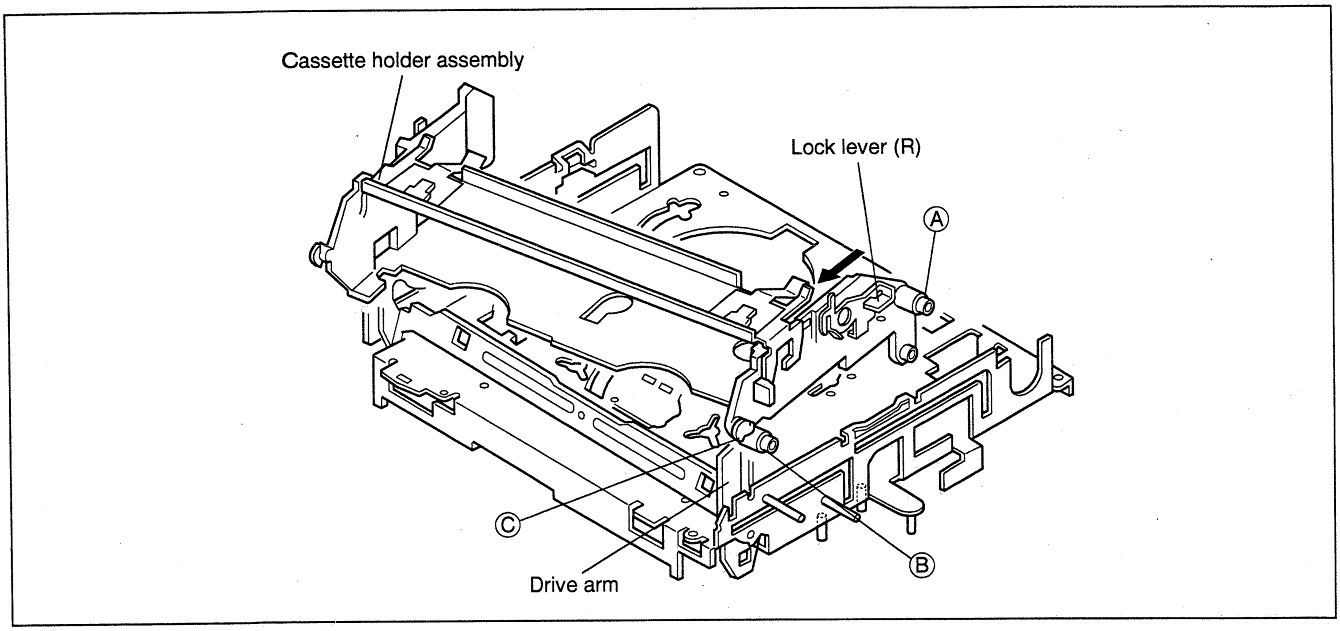

Cassette holder assembly
Lock lever (R)
Ⓐ
Ⓒ
Drive arm
Ⓑ

Fig. 2-2-7

2. How to install

(1) Hold the drive arm upright and fit the leg Ⓒ on the right side of the cassette holder assembly into the groove. (See Fig.2-2-7)
(2) While swinging the lock lever (R) of the cassette holder assembly toward front, put the legs Ⓐ and Ⓑ into the rail. (See Fig.2-2-7)
(3) Drop the three legs on the left side of the cassette holder into the groove at one time. (See Fig.2-2-8)
(4) Slide the whole cassette holder toward the front to bring it to the eject end position.
(5) Install the limit gear so that the notch on the outer circumference of the limit gear is brought into alignment with the register hole on the main deck. (See Fig.2-2-9)
(6) Install the relay gear so that the notch on the outer circumference of the relay gear is brought into alignment with the notch on the main deck. It is important at this stage that the register hole at the limit gear, the register hole at the relay gear and the register hole at the drive gear are all in alignment. (See Fig.2-2-9).
(7) Install the door stopper, opener guide and cassette holder bracket and fasten the two slit washers.

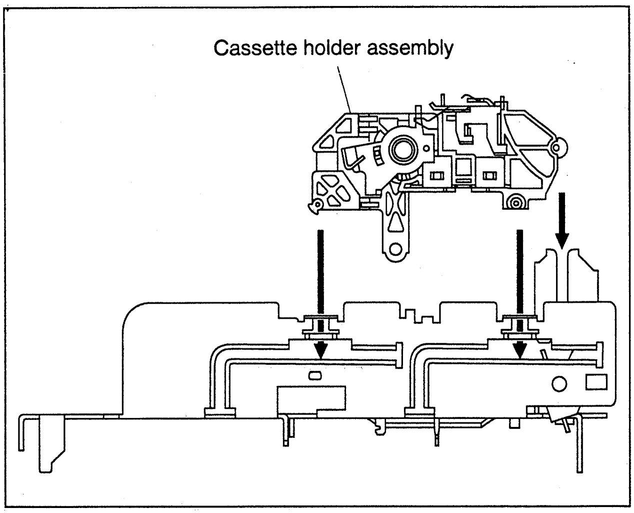

Cassette holder assembly

Fig. 2-2-8

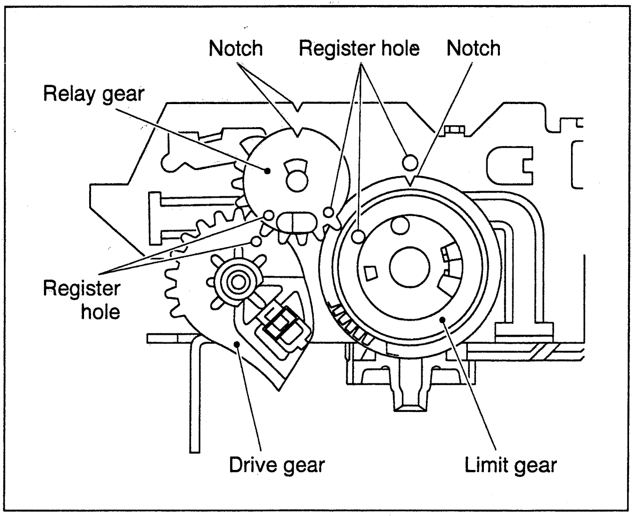

Notch
Register hole
Notch
Relay gear
Register hole
Drive gear
Limit gear

Fig. 2-2-9

2.2.4 Pinch Roller Arm Assembly

1. How to remove

(1) Remove the spring from the hook of the press lever.

(2) Remove the slit washer and remove the pinch roller seat. (See Fig.2-2-10)

(3) Remove the pinch roller arm assembly by pulling it up.

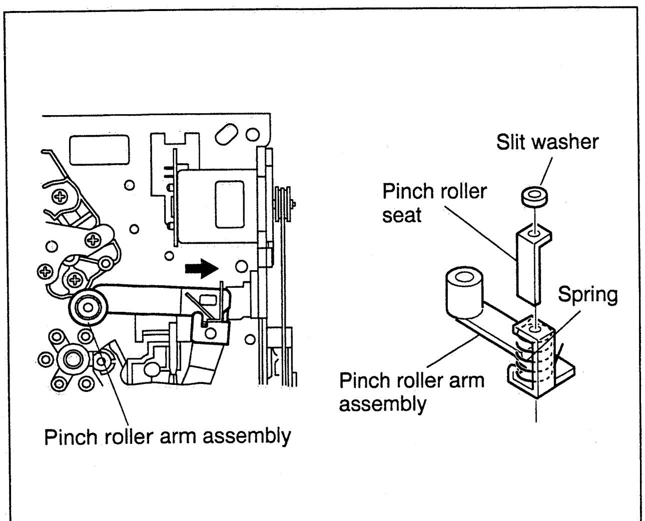

Slit washer
Pinch roller seat
Spring
Pinch roller arm assembly
Pinch roller arm assembly

Fig. 2-2-10

2.2.5 Guide Arm and Press Lever

1. How to remove

(1) Remove the spring and expand the lug of the lid guide in the arrow-indicated direction. Then remove the guide arm by pulling it up.

(2) Remove the press arm by pulling it up. (See Fig.2-2-11)

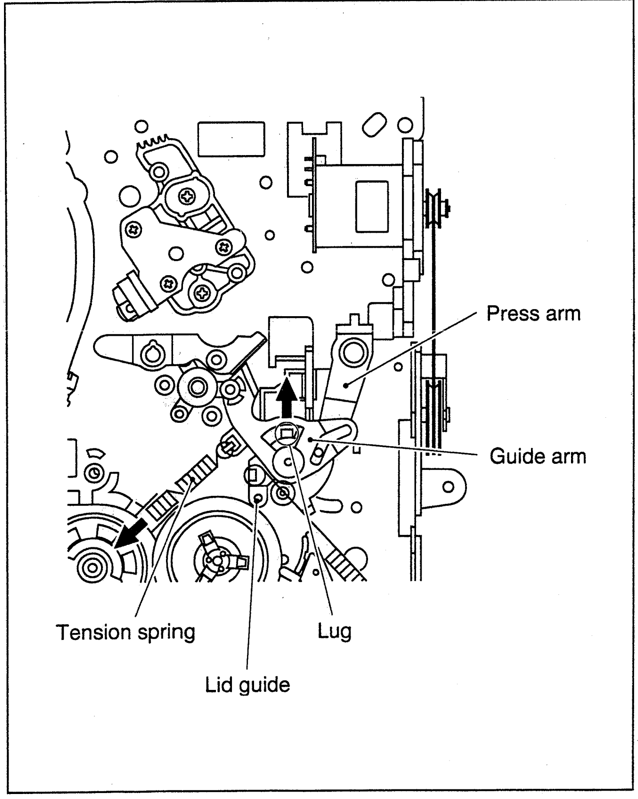

Press arm
Guide arm
Tension spring
Lug
Lid guide

Fig. 2-2-11

2.2.6 Audio Control Head

1. How to remove

(1) Remove two screws (A) and remove the audio control head together with the head base.

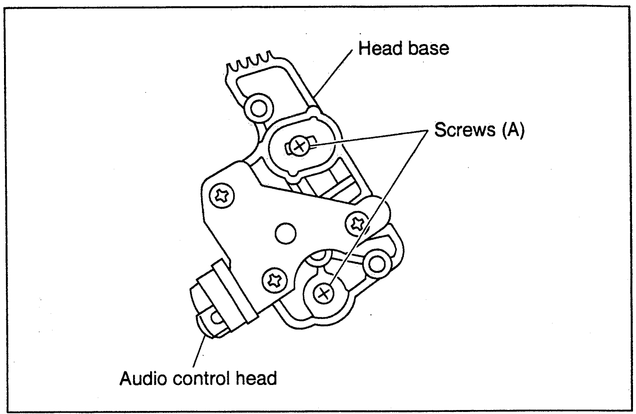

Head base
Screws (A)
Audio control head

Fig. 2-2-12

(2) When replacing only the audio control head, remove the three screws (B) while controlling the compression spring.

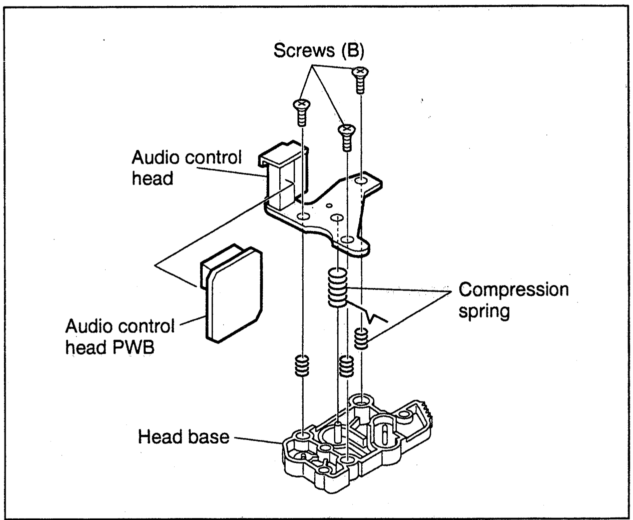

Screws (B)
Audio control head
Compression spring
Audio control head PWB
Head base

Fig. 2-2-13

2. How to install

(1) To make the post-installation adjustment easier, set the temporary level as indicated in Fig.2-2-14. Also make sure that the screw center is brought into alignment with the center position of the slot.

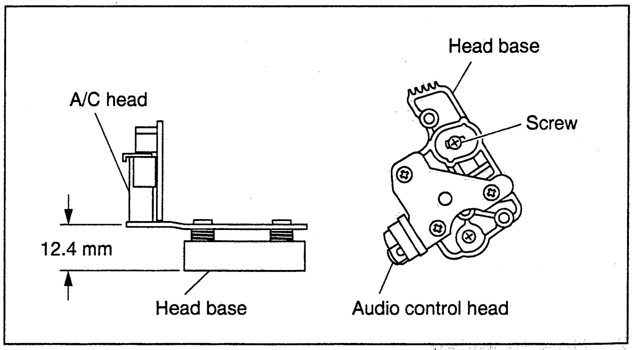

Head base
A/C head
Screw
12.4 mm
Head base
Audio control head

Fig. 2-2-14

2.2.7 Loading Motor

1. How to remove

(1) Remove the belt wound around the worm gear.
(2) Open the two lugs of the motor guide and remove the loading motor, loading motor PWB and motor guide altogether by pulling them up.
(3) When replacing the motor base, take care with the orientation of the motor (so that the label faces upward).
(4) When the motor pulley has been replaced, choose the fitting dimension as indicated in Fig.2-2-15.

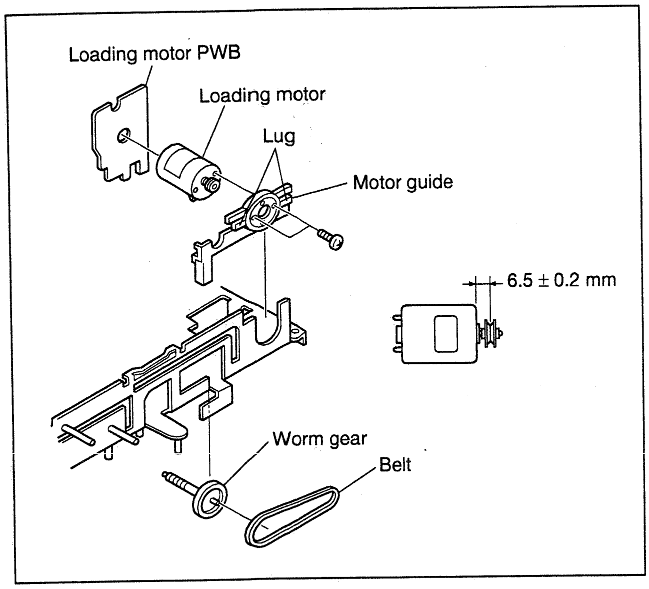

Loading motor PWB
Loading motor
Lug
Motor guide
6.5 ± 0.2 mm
Worm gear
Belt

Fig. 2-2-15

2.2.8 Capstan Motor

1. How to remove

(1) Remove the belt (capstan) on the main deck back side.
(2) Remove one screw (A) and remove the pinch roller guide.
(3) Remove two screws (B) and remove the capstan motor.

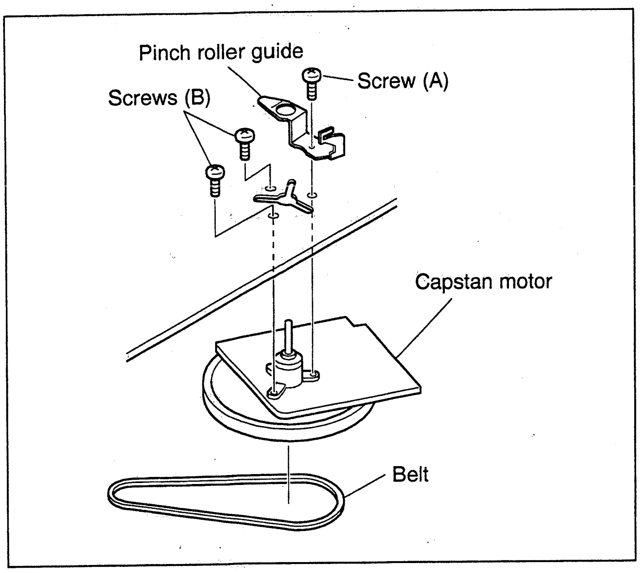

Pinch roller guide
Screw (A)
Screws (B)
Capstan motor
Belt

Fig. 2-2-16

2. How to install

Please refer to page 2-25.

2.2.9 Pole Base (on the supply or take-up side)

1. How to remove

(1) Remove the UV catcher on the removal side by loosening one screw (A).
(2) Remove the pole base on the supply side from the main deck by loosening one screw (B) on the main deck back side and sliding the pole base toward the UV catcher.
(3) As for the pole base on the take-up side, turn the pulley of the loading motor to lower the cassette holder because the screw (B) is hidden under the control plate (See the "Procedures for Lowering the Cassette holder assembly" on page 1-3 of 1.3 DISASSEMBLY/ASSEMBLY METHOD). Further turn the motor pulley to move the cassette holder until the screw (B) is no longer under the control plate (in the half-loading position). Then remove it as done for the supply side by removing one screw (B).

NOTE: *After reinstalling the Pole base and the UV catcher, be sure to perform compatibility adjustment.*

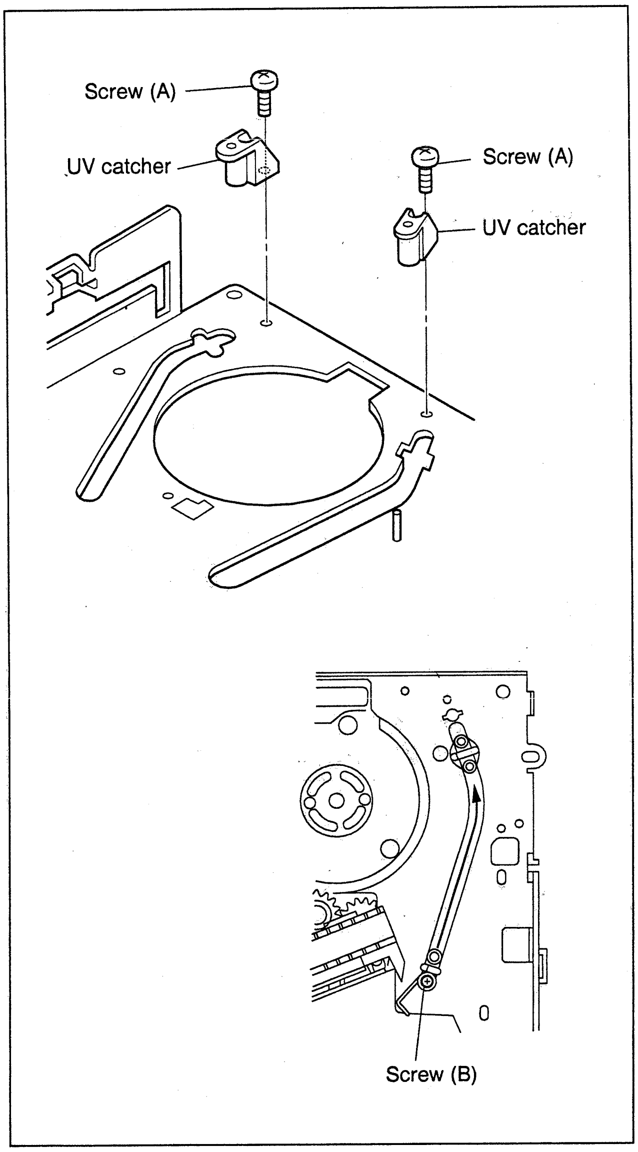

Screw (A)
UV catcher
Screw (A)
UV catcher
Screw (B)

Fig. 2-2-17

2.2.10 Rotary Encoder

(1) Remove one screw (A) and remove the rotary encoder by pulling it up.

(2) When installing the rotary encoder, bring the register marks into alignment as indicated in Fig.2-2-18.

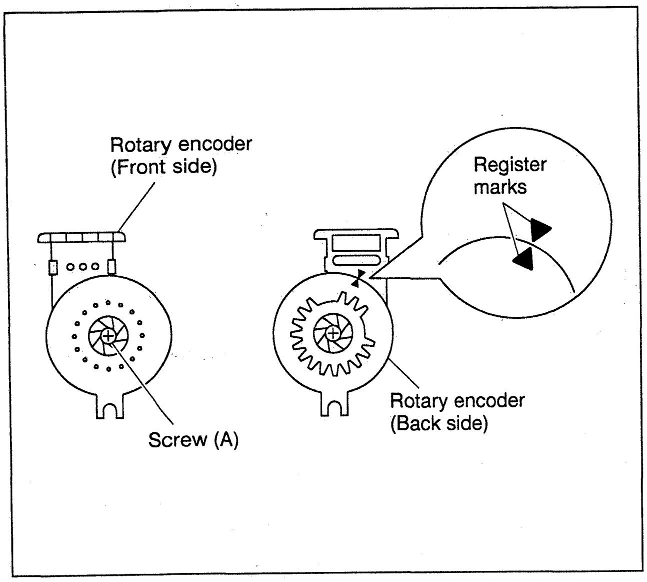

Rotary encoder
(Front side)
Register
marks
Rotary encoder
(Back side)
Screw (A)

Fig. 2-2-18

2.2.11 Clutch Unit

(1) Remove the belt wound around the capstan motor and the clutch unit.

(2) Remove the slit washer and remove the clutch unit.

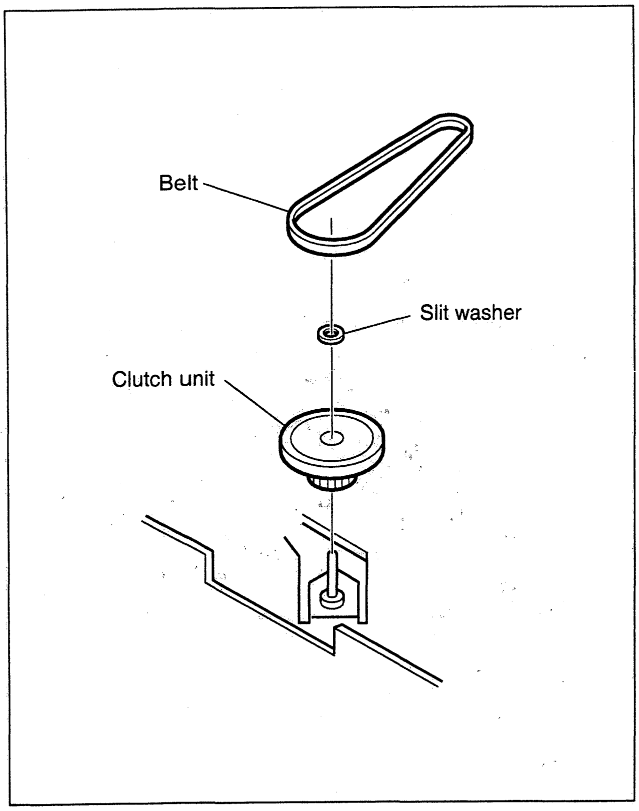

Belt
Slit washer
Clutch unit

Fig. 2-2-19

2.2.12 Change Lever and Direct Gear

(1) Release two lugs of the rotary encoder guide in the arrow-indicated direction and remove the change lever.

(2) Remove the slit washer retaining the direct gear and remove the latter.
Take care of the two washers and one spring on and under the direct gear. (See Fig.2-2-20)

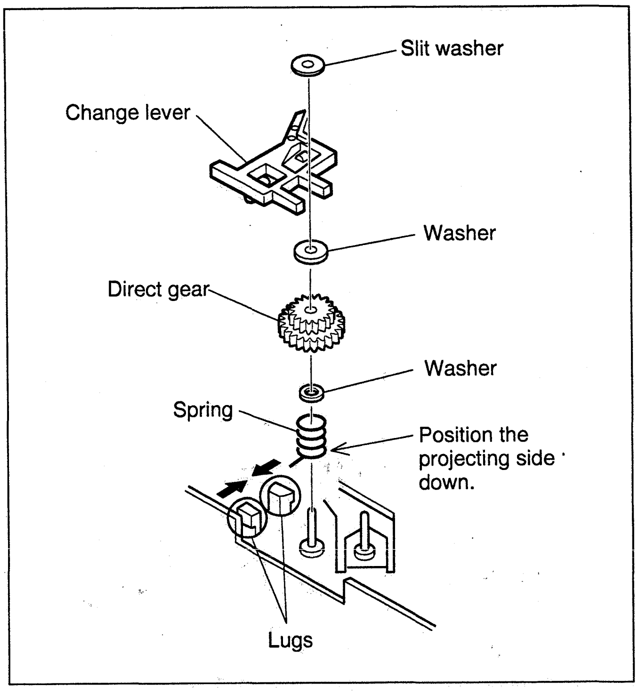

Slit washer
Change lever
Washer
Direct gear
Washer
Spring
Position the
projecting side
down.
Lugs

Fig. 2-2-20

2.2.13 Link Lever

(1) Remove the two slit washers.

(2) Remove the link lever by lifting it from the shaft retained by the slit washers. Then swing the link lever counterclockwise and remove it from the lock member of the control plate.

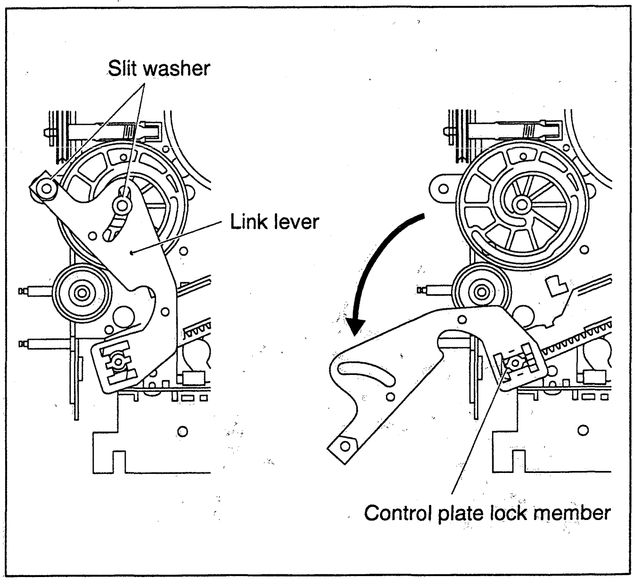

Slit washer
Link lever
Control plate lock member

Fig. 2-2-21

2.2.14 Cassette Gear, Control Cam and Worm Gear

(1) Remove the control cam by lifting it.
(2) Open the two lugs of the cassette gear outward and pull the latter off.
(3) Remove the belt wound around the worm gear and the loading motor.
(4) Open the lug of the lid guide outward and remove the worm gear.
(5) When installing the control cam, make sure that the register hole at the control cam is in alignment with the register hole of the main deck. (See Fig.2-2-22)

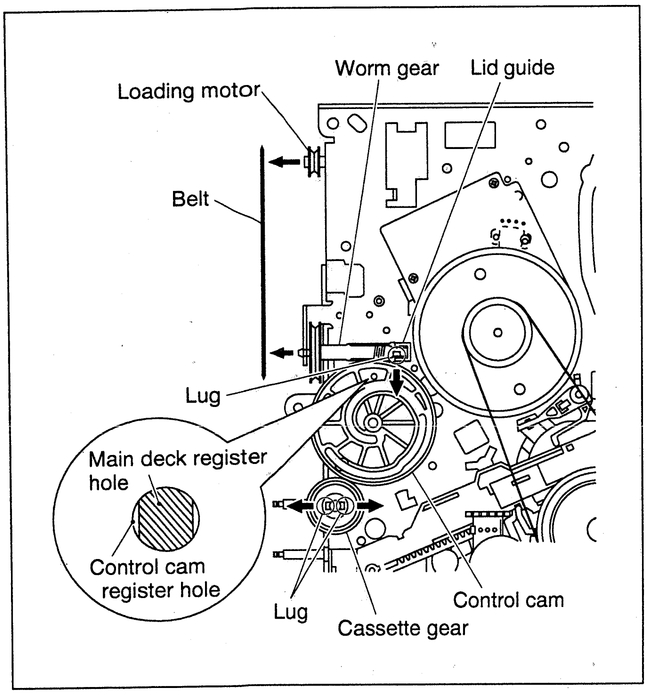

Loading motor
Worm gear
Lid guide
Belt
Lug
Main deck register hole
Control cam register hole
Lug
Cassette gear
Control cam

Fig. 2-2-22

2.2.15 Control Plate

1. How to remove

(1) Remove one screw (A) retaining the control plate bracket and remove the latter.
(2) Slide the control plate as indicated by the arrow and remove the control plate. (See Fig.2-2-23)

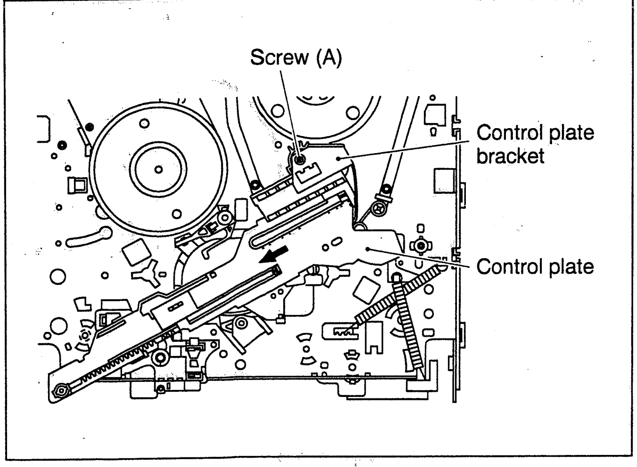

Screw (A)
Control plate bracket
Control plate

Fig. 2-2-23

2. How to install

(1) Adjust the position of the idler arm pin as indicated in Fig.2-2-24. (to the left of center of the R section)
(2) Bring the positioning hole of the take-up lever into alignment with the hole at the control plate guide and fix the position by inserting a 1.5 mm hexagonal wrench.
(3) Press-fit the pole base (on the supply side) as indicated by the arrow and install the control plate so that section A of the loading arm gear shaft fits into hole (A) of the control plate, section B of the control plate guide into hole (B), and the control plate comes under section C of the rotary encoder guide and section D of the loading arm (on the take-up side). Then slide the whole control plate in the arrow-indicated direction. (See Fig.2-2-25).
(4) Make sure that the mark E of the control plate is in alignment with the mark ▼ of the loading arm gear shaft. (See Fig.2-2-25)
(5) Pull off the hexagonal wrench for positioning.

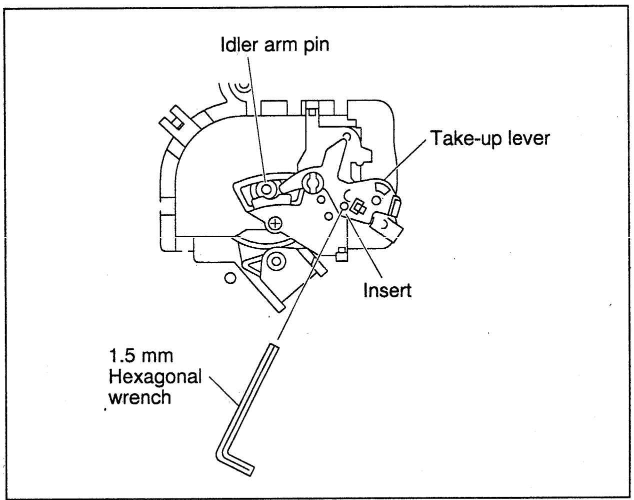

Idler arm pin
Take-up lever
Insert
1.5 mm Hexagonal wrench

Fig. 2-2-24

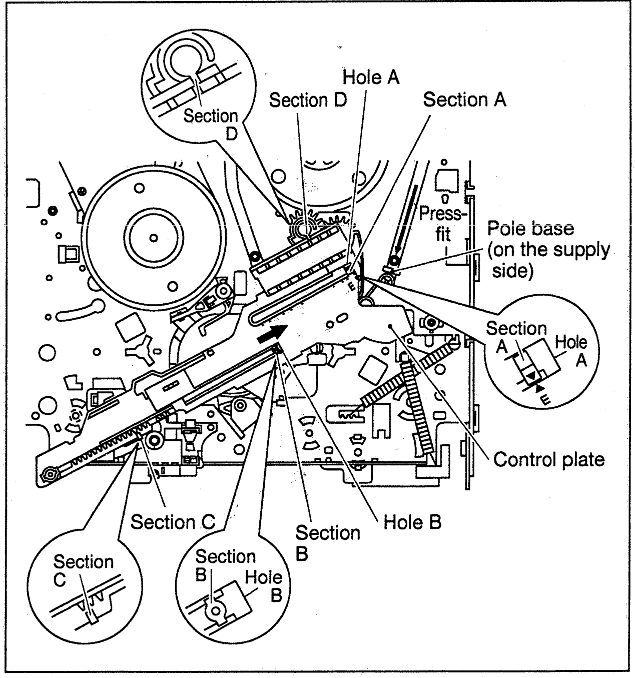

Section D
Hole A
Section D
Section A
Press-fit
Pole base (on the supply side)
Section A
Hole A
E
Control plate
Section C
Section B
Hole B
Section C
Section B
Hole B

Fig. 2-2-25

2.2.16 Loading Arm (on the supply or take-up side) and Loading Arm Gear Shaft

1. How to remove

(1) Remove the loading arm (on the supply side) by loosening screw (A) in Fig.2-2-26.

(2) Remove screw (B) in Fig.2-2-26 and slide the pole base in the loading direction with the spring held on the pole base (on the take-up side). (See Fig.2-2-26)

(3) Pull the spring out of the pole base. Turn the loading arm clockwise through about 45 degrees so that the notch of the loading arm is in alignment with the projection of the loading arm gear shaft and lift it.
Likewise, turn the loading arm counterclockwise through 180 degrees so that the notch is in alignment with the projection and remove the loading arm (on the take-up side). (See Fig.2-2-27)

(4) When removing the loading arm gear shaft, be sure of first removing the screw retaining the drum assembly (on the back side of the loading arm gear shaft). Then remove one screw (C) and remove the loading arm gear shaft by sliding it in the arrow-indicated direction.

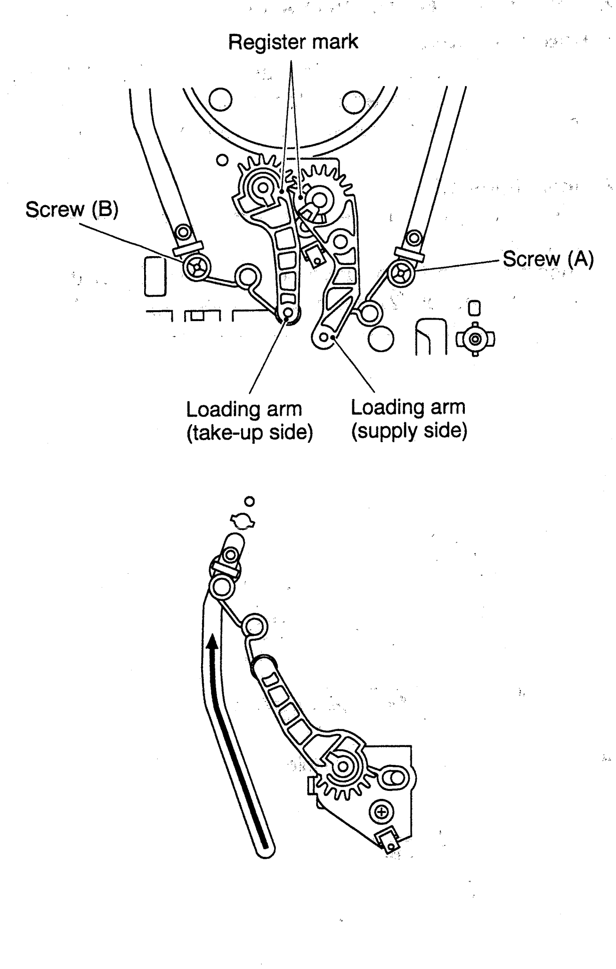


Fig. 2-2-26

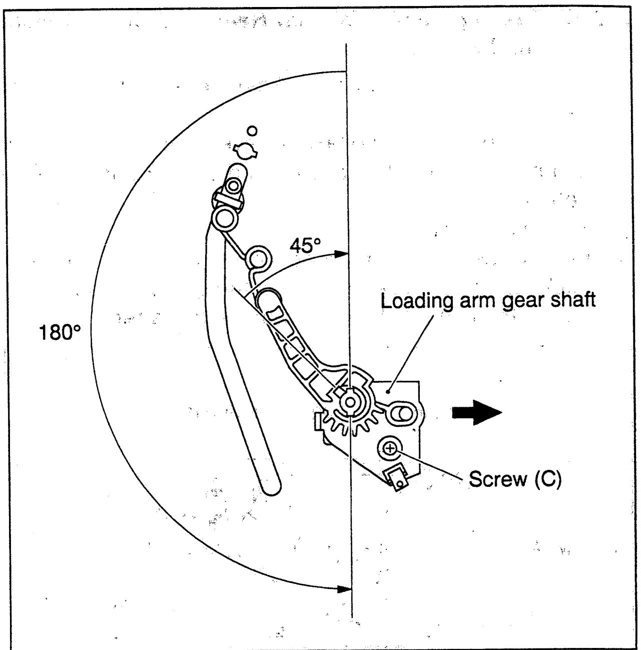


Fig. 2-2-27

2. How to install

(1) Install the loading arm (on the take-up side) as indicated in Fig.2-2-28 and turn it clockwise through 180 degrees so that the loading arm reaches the bottom of the loading arm gear shaft.

(2) Then turn the loading arm (on the take-up side) counterclockwise through 180 degrees. Hang the spring on the pole base and tighten the screw.

(3) Install the loading arm (on the supply side) so that the register mark of the loading arm (on the take-up side) is in alignment with the register mark of the loading arm (on the supply side). Then hang the spring on the pole base and tighten the screw. (See Fig.2-2-26).

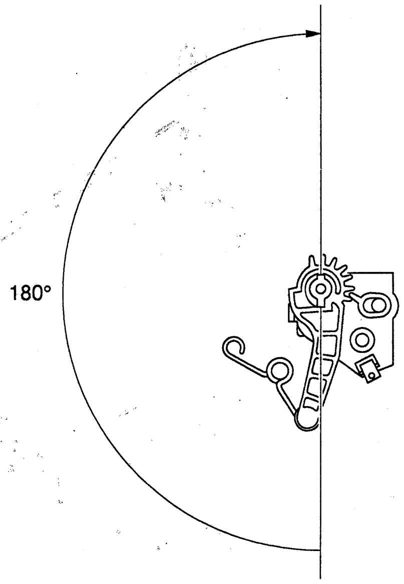


Fig. 2-2-28

2.2.17 Take-up Lever, Take-up Head and Control Plate Guide

(1) Remove the spring of the take-up lever from the main deck.
(2) Remove one lug of the take-up lever from the main deck and pull out the take-up lever and the take-up head together.
(3) Remove one screw (A).
(4) Remove two lugs of the control plate guide from the main deck. Locate the idler arm pin in the center of the R section of the control plate and remove the latter.

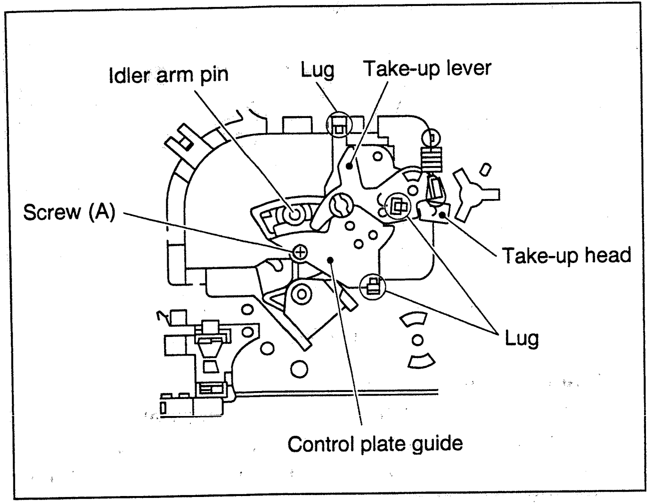


Fig. 2-2-29

2.2.18 Capstan Brake

(1) Move lug A of the capstan brake in the arrow-indicated direction so that it comes into alignment with the notch of the main deck. (See Fig. 2-2-30)
(2) Remove lug B of the capstan brake from the main deck and remove the capstan brake.

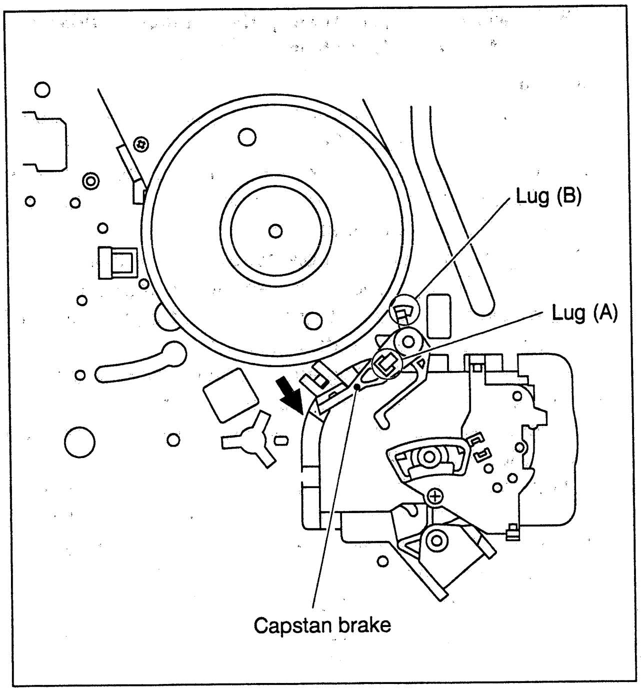


Fig. 2-2-30

2.2.19 Drive Gear and Drive Arm

1. How to remove

(1) Remove the cassette holder assembly. (See 2.2.3 How to remove the cassette holder assembly)
(2) Pull out the drive gear and remove the drive arm.

2. How to install

(1) Insert section A of the drive arm into section B of the main deck.
(2) Insert section ① of drive gear into hole ○ of the drive arm and section ② into hole □. (See Fig. 2-2-31)

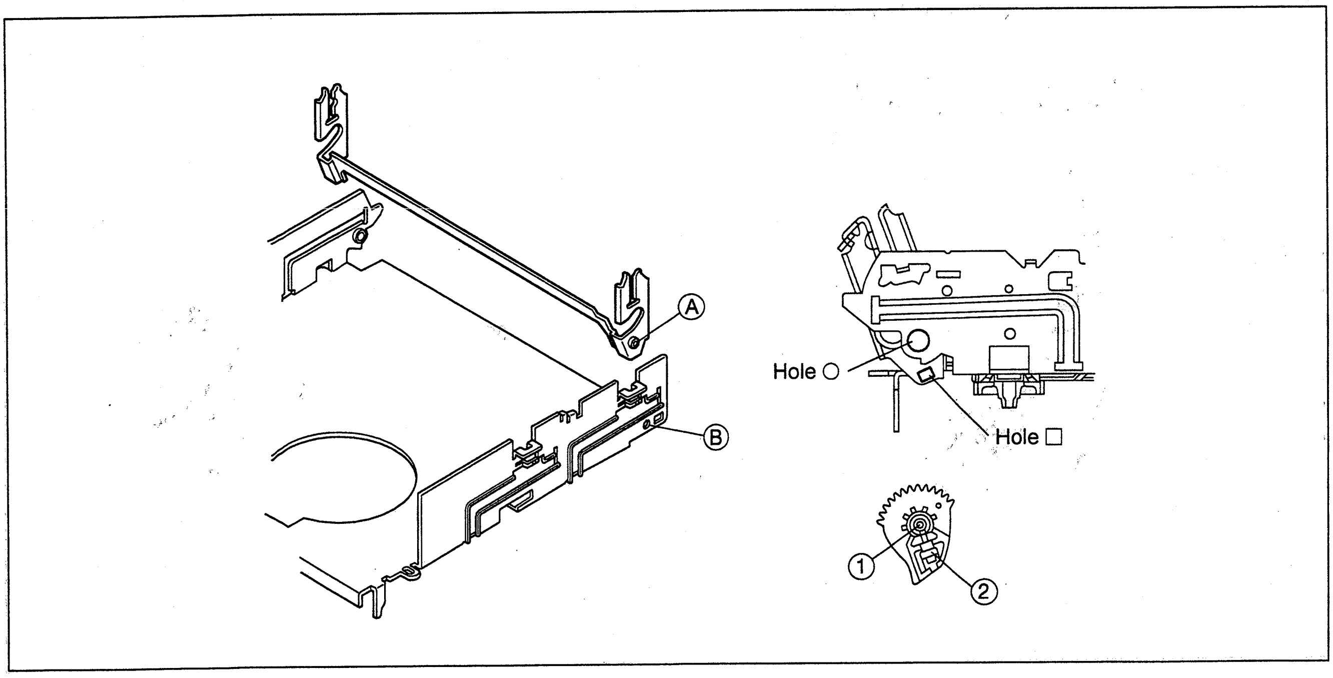


Fig. 2-2-31

2.2.20 Sub Brake (on the take-up side)

(1) Remove the spring attached to the lid guide and sub brake.
(2) Bring lug Ⓐ of the sub brake into alignment with the notch of the main deck.
(3) Remove lugs Ⓑ and Ⓒ of the sub brake from the main deck and remove the sub brake.

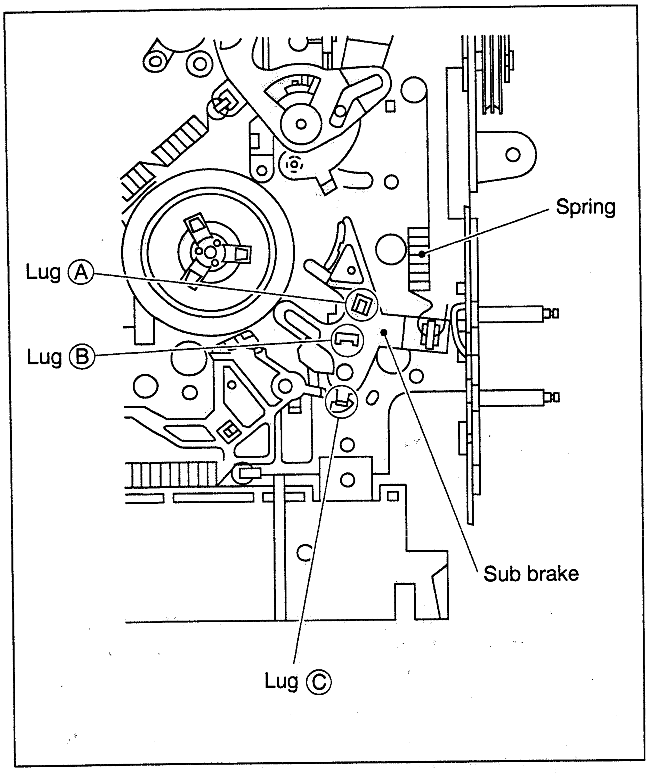

Spring
Lug Ⓐ
Lug Ⓑ
Sub brake
Lug Ⓒ

Fig. 2-2-32

2.2.21 Main Brake (on the take-up side), Reel Disk (on the take-up side) and Main Brake (on the supply side)

(1) Move the main brake (on the take-up side) in the arrow-indicated direction and remove the reel disk (on the take-up side).
(2) Remove the spring attached to the main brake.
(3) Remove lug Ⓐ of the main brake (on the take-up side) and pull out lug Ⓑ after bringing it into alignment with the main deck notch.
(4) Remove lugs Ⓒ and Ⓓ of the main brake (on the supply side) from the main deck and pull them off. (See Fig.2-2-33)

Note: *If the main brake is difficult to remove, press it and hold the adjustment pin from the back side of the main deck when attempting to remove it.*
After the adjustment pin has been removed or the main brake or the reel disk on the supply or take-up side have been replaced, it is required to adjust the main brake torque. See page 2-24 for the detailed adjustment procedures.

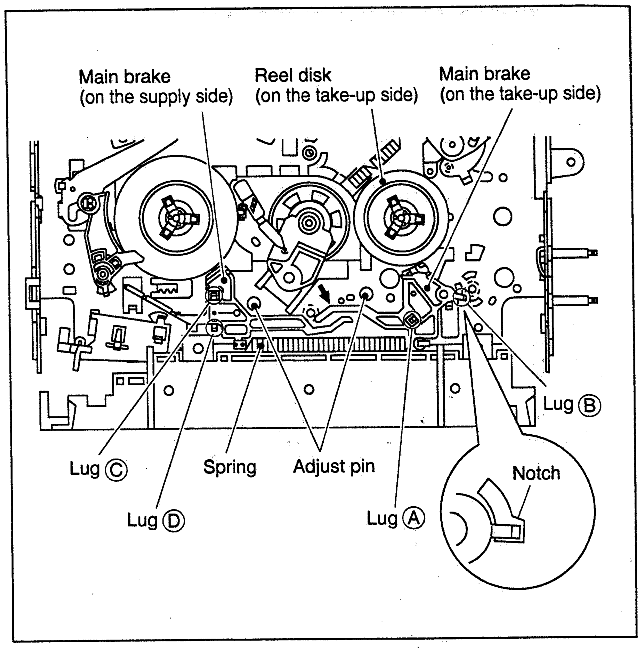

Main brake (on the supply side)
Reel disk (on the take-up side)
Main brake (on the take-up side)
Lug Ⓑ
Notch
Lug Ⓒ
Spring
Adjust pin
Lug Ⓓ
Lug Ⓐ

Fig. 2-2-33

2.2.22 Tension Brake, Reel Disk (on the supply side) and Tension Arm

(1) Remove the three lugs of the tension brake from the main deck and pull them off.
(2) Remove the reel disk (on the supply side) by loosening in the arrow-indicated direction the main brake (on the supply side).
(3) Remove the tension spring on the main deck back side and remove the lugs of the tension arm bearing to pull up and remove the tension arm. (See Fig.2-2-34)

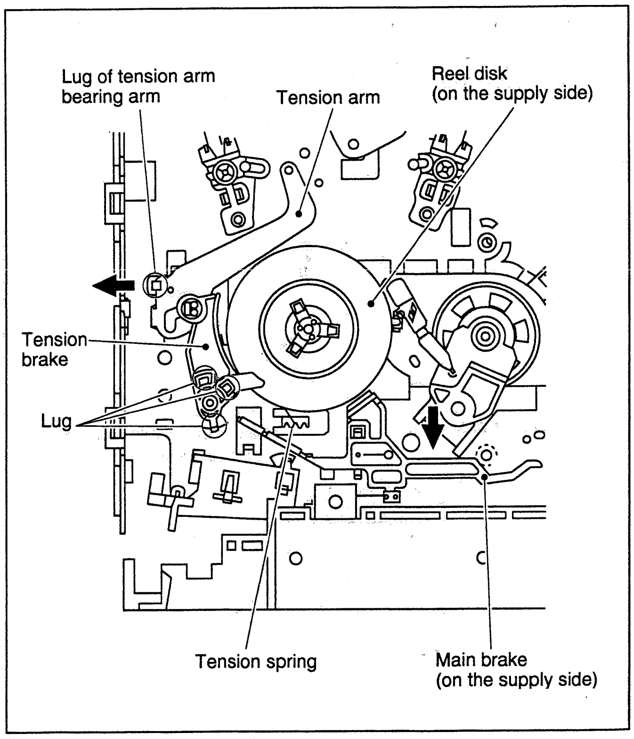

Lug of tension arm bearing arm
Tension arm
Reel disk (on the supply side)
Tension brake
Lug
Tension spring
Main brake (on the supply side)

Fig. 2-2-34

2.2.23 Idler Lever, Idler Arm and Reel Shaft

(1) Remove one lug of the idler lever from the main deck and remove the hook fitted in the idler arm hole by lifting it.
(2) Remove the slit washer and pull out the idler arm.
(3) Turn the reel shaft counterclockwise through 60 degrees and remove it. (See Fig.2-2-35)

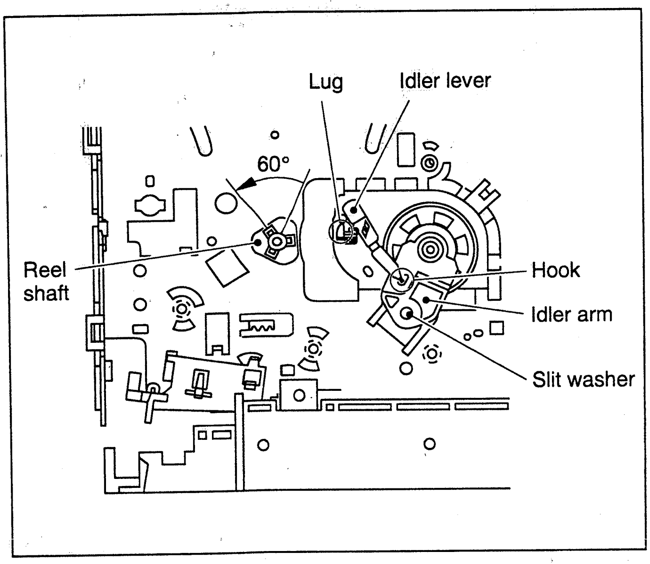

Lug
Idler lever
60°
Reel shaft
Hook
Idler arm
Slit washer

Fig. 2-2-35

2.2.24 Stator Assembly

(1) Remove two screws (A).
(2) Remove the stator assembly by lifting in the arrow-indicated direction (Take care that the brush spring does not jump out).
(3) Remove the flat cable.
(4) After installation, be sure to perform the 3.2.1 PB switching point adjustment according to the electrical adjustment procedure.

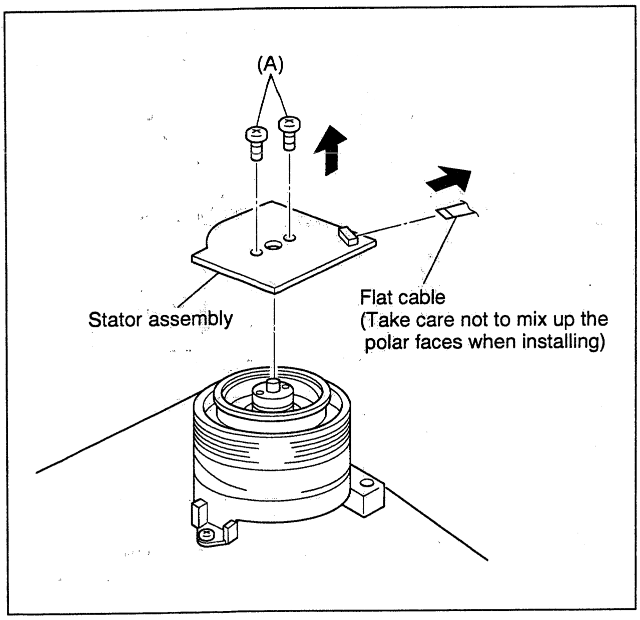

(A)
Stator assembly
Flat cable
(Take care not to mix up the polar faces when installing)

Fig. 2-2-36

2.2.25 Rotor Assembly

(1) Remove the stator assembly.
(2) Remove the two screws (B) and remove the rotor assembly.

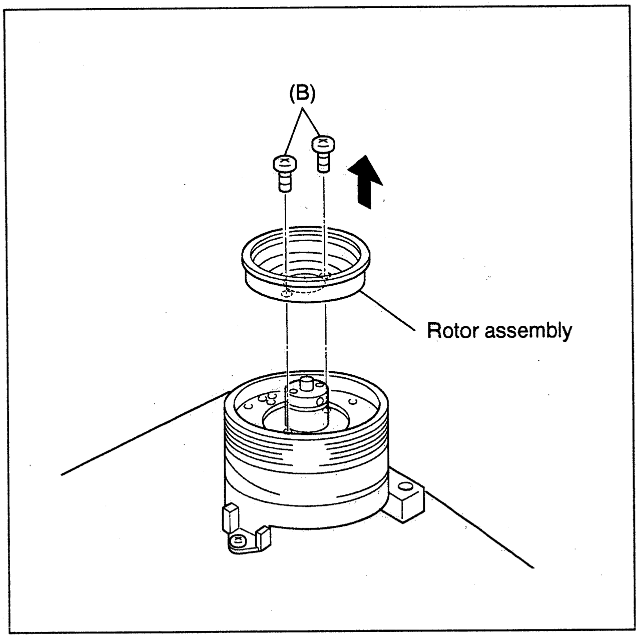

(B)
Rotor assembly

Fig. 2-2-37

Note: *When installing the rotor assembly, note that a normal picture cannot be obtained without ensuring the phase matching as mentioned below.*

(3) Match the phases of the upper drum and the rotor assembly as indicated in Fig.2-2-38.
(4) Place the upper drum hole (a) over the rotor assembly holes (b) (with three holes to be aligned) and tighten the two screws (B). (See Fig.2-2-38)

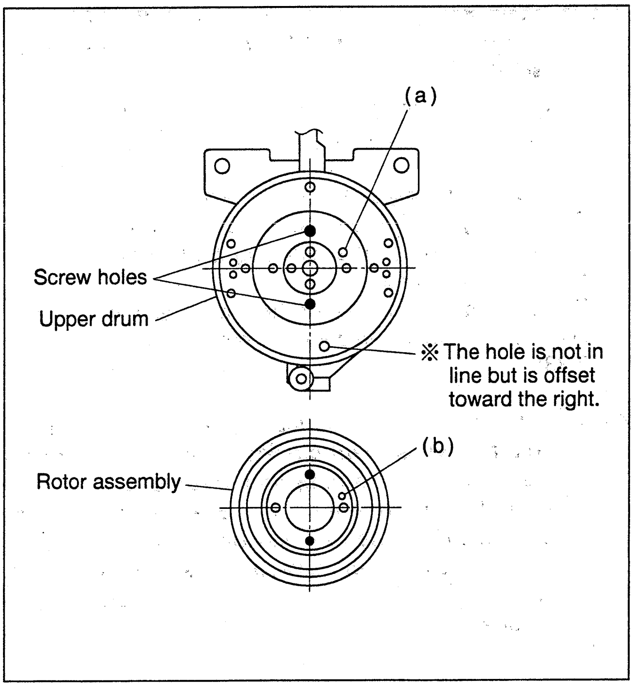

(a)
Screw holes
Upper drum
※ The hole is not in line but is offset toward the right.
(b)
Rotor assembly

Fig. 2-2-38

2.2.26 Upper Drum Assembly

1. How to remove

(1) Remove the stator assembly and rotor assembly. (See Fig. 2-2-36 and 2-2-37)

(2) Loosen the screw of the collar assembly using a 1.5 mm hexagonal wrench and remove the collar assembly. Also remove the brush, spring and cap at one time.

(3) Remove the upper drum assembly and remove the washer using tweezers.

Note: *When replacement is required, control the up-down movement of the brush. Never apply grease.*

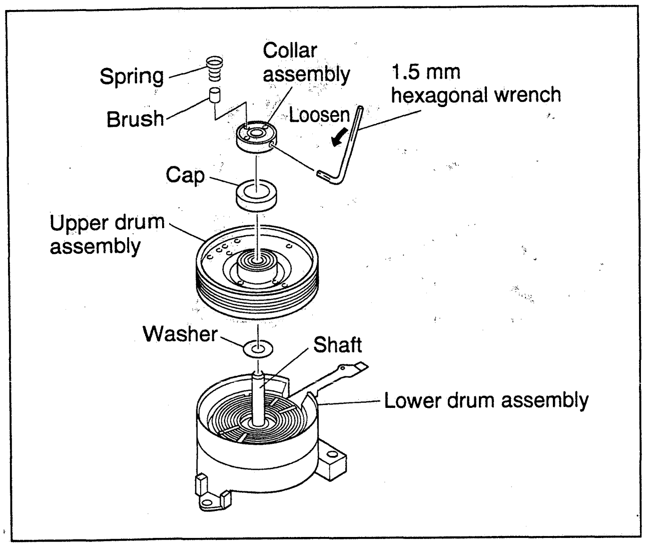

Spring
Collar assembly
1.5 mm hexagonal wrench
Brush
Loosen
Cap
Upper drum assembly
Washer
Shaft
Lower drum assembly

Fig. 2-2-39 Upper drum assembly-1

2. How to install

(1) Clean coil parts of the lower drum assembly and the newly installed upper drum assembly with an air brush in advance. (See Fig.2-2-40).

(2) Install a new washer and upper drum assembly on the drum shaft. (See Fig.2-2-39)

Note: *When replacing the upper drum assembly, replace it the together with the washer.*

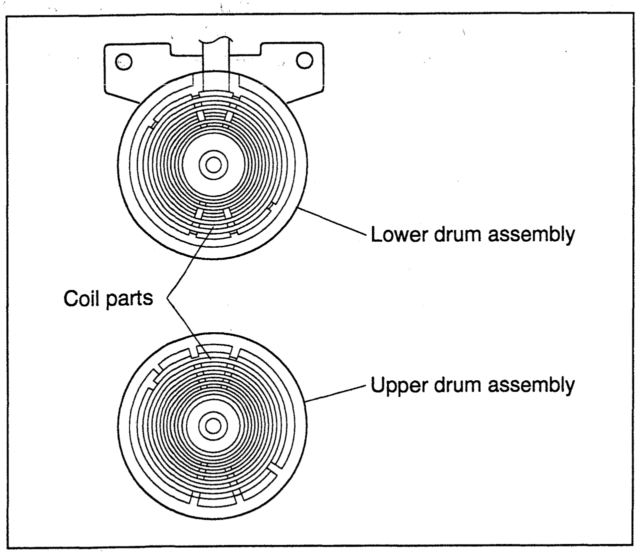

Lower drum assembly
Coil parts
Upper drum assembly

Fig. 2-2-40

(3) Position the collar assembly as indicated in Fig.2-41 while controlling its up- down movement.

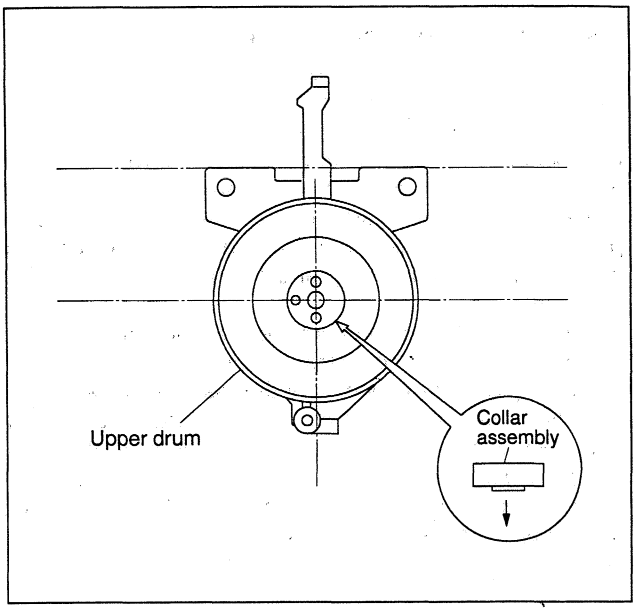

Upper drum
Collar assembly

Fig. 2-2-41

(4) Secure the collar assembly in position with a hexagonal wrench while pressing its top with the fingers.

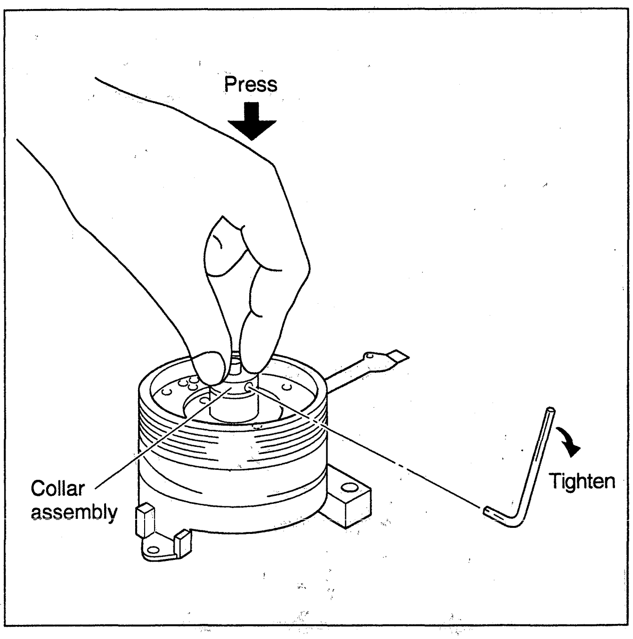

Press
Collar assembly
Tighten

Fig. 2-2-42

(5) After installation, gently turn the upper drum with your hand to make sure that it turns normally.

(6) Install the rotor assembly and stator assembly according to Fig 2-2-36 and 2-2-38.

(7) When installation is complete, clean the upper drum assembly and lower the drum assembly and carry out the following adjustments.

- PB switching point adjustment
- Slow tracking adjustment
- Compatibility adjustment (Be sure to check for compatibility for the EP mode.)

2.3 MAJOR PARTS INSTALLATION (PHASE MATCHING BETWEEN MECHANICAL PARTS)

2.3.1 Before Assembly of the Parts

The mechanism of this unit is closely linked with the rotary encoder and system controller circuits.
Since the system controller detects the status of mechanical operation in response to phases of the rotary encoder (internal switch positions), the mechanism may not operate properly unless such parts as the rotary encoder, control plate, loading arm assembly, control cam, cassette gear, limit gear, relay gear and drive gear are installed in their correct positions.
Especially, this model is not provided with any cassette housing assembly, so that cassette loading and unloading must be accomplished by operation of the cassette holder assembly. The latter is in turn driven by such parts as drive gear, relay gear and limit gear. Exercise enough care, therefore, to have the phases of all this gear matching one another.
Perform the installation of major parts (including phase matching) in the mechanism assembling mode as in the previous section.

2.3.2 Loading Arm Assembly (on the Supply or Take-up Side)

(1) Return the pole base assembly to the foremost position in the unloading direction.
(2) Install the loading arm assembly so that the register mark on the gear of the supply side loading arm is in alignment with the one on the take-up side loading arm as indicated in Fig. 2-3-1.
See 2.2.16 "2. How to install" of the foregoing section for details of installation.

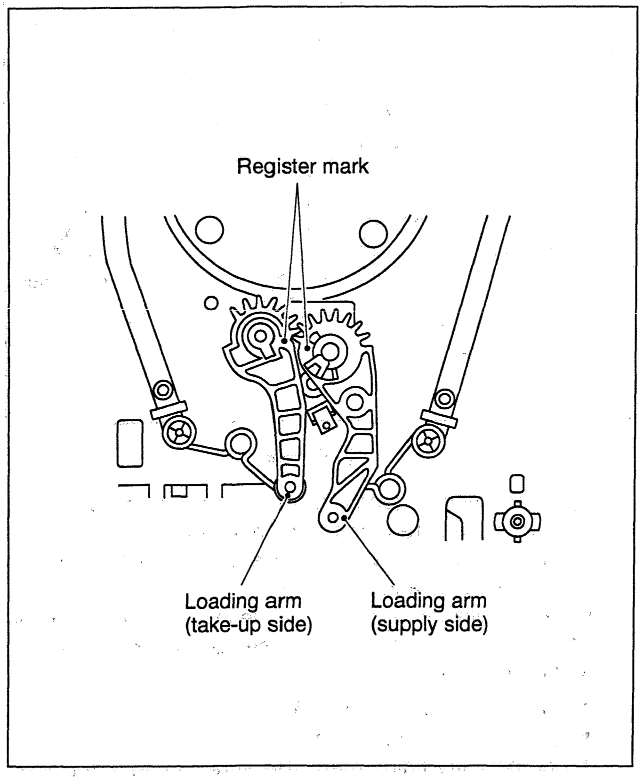


Fig. 2-3-1

2.3.3 Control Plate

(1) With register marks on the both loading arm assemblies in alignment, install the control plate so that the mark ▼ on the loading arm gear shaft is in alignment with mark E of the control plate. (See Fig.2-3-2)
See 2.2.15 "2. How to install" of the foregoing section for details of installation.

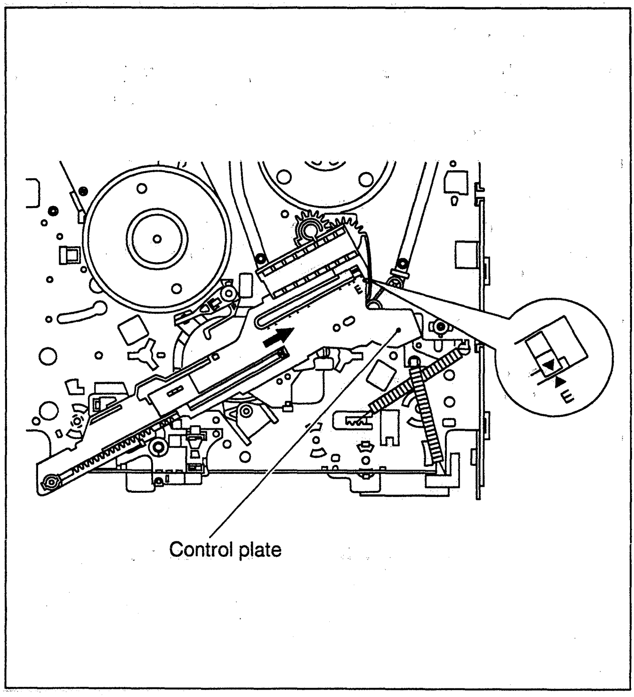


Fig. 2-3-2

2.3.4 Rotary Encoder

(1) Make sure that the mark E of the control plate is in alignment with the mark ▼ of the loading arm gear shaft and bring the register marks on the rotary encoder into alignment as indicated in Fig.2-3-3.
(2) Turn over the rotary encoder with its register marks kept in alignment and install it by fitting on the shaft of the rotary encoder guide and the positioning pin.
(3) Tighten the screw (A) to complete the installation.

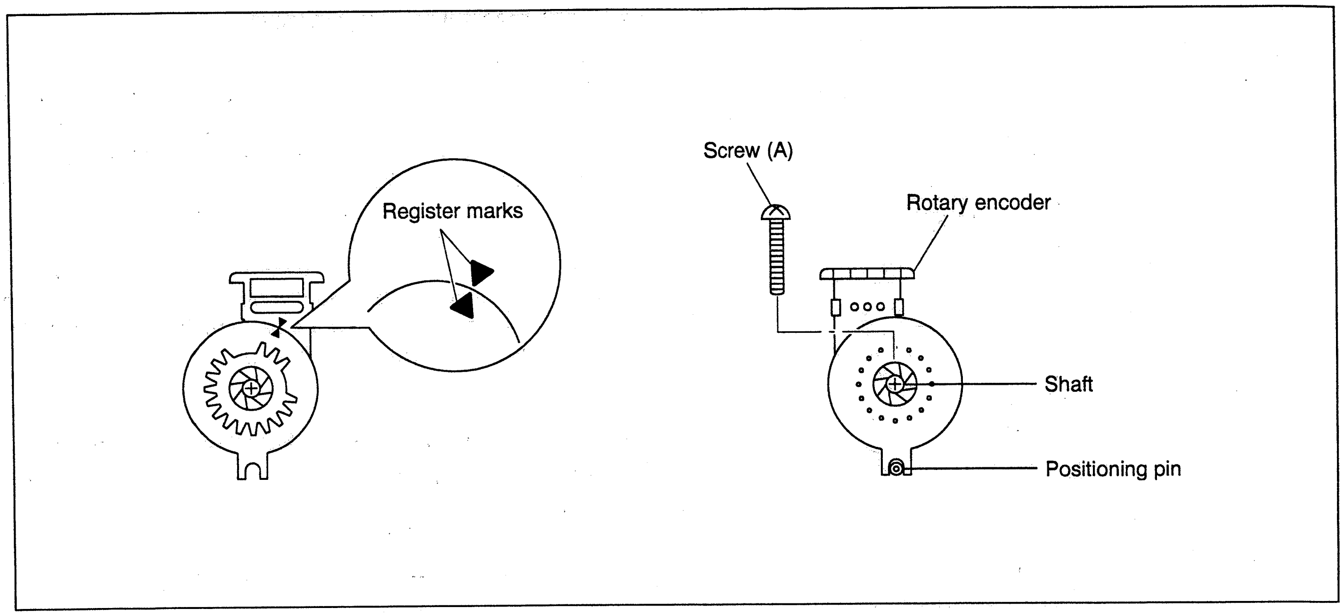

Register marks
Screw (A)
Rotary encoder
Shaft
Positioning pin

Fig. 2-3-3

2.3.5 Control Cam, Cassette Gear and Link Lever

(1) Install the control cam as indicated in Fig.2-3-4 making sure of the front and back side alignment.
Note here that the register hole of the control cam is in alignment with and allows passage through the register hole of the main deck. Perform fine-adjustment by turning the worm gear.
(2) Install the cassette gear by pushing it until it is locked with a clicking sound. (See Fig.2-3-4)
(3) Insert section (A) of the link lever into section (B) of the control plate as shown in Fig.2-3-5.

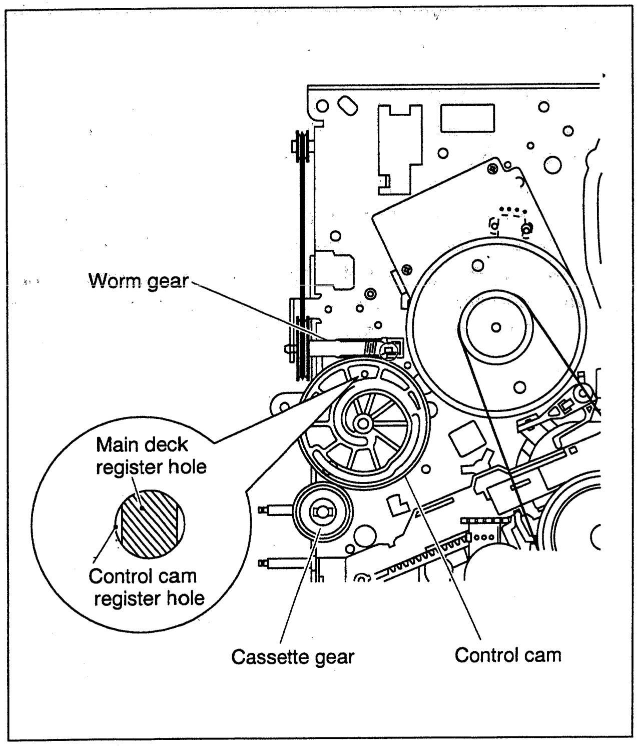

Worm gear
Main deck register hole
Control cam register hole
Cassette gear
Control cam

Fig. 2-3-4

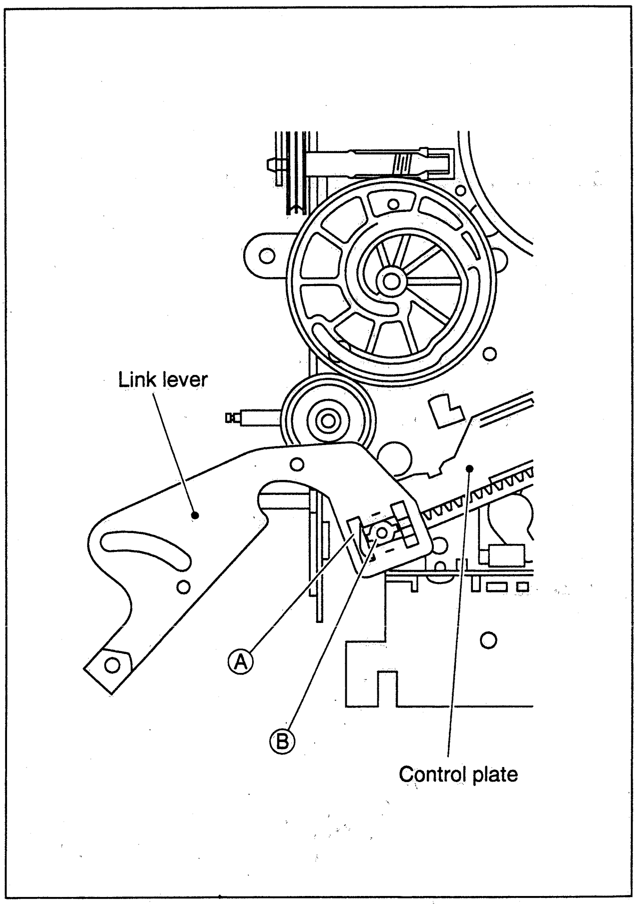

Link lever
Ⓐ
Ⓑ
Control plate

Fig. 2-3-5

(4) Turn the link lever clockwise and mount it on the control cam center shaft Ⓐ and the control cam left-side shaft Ⓑ. (See Fig.2-3-6).

(5) Fasten the slit washers at two points Ⓐ and Ⓑ.

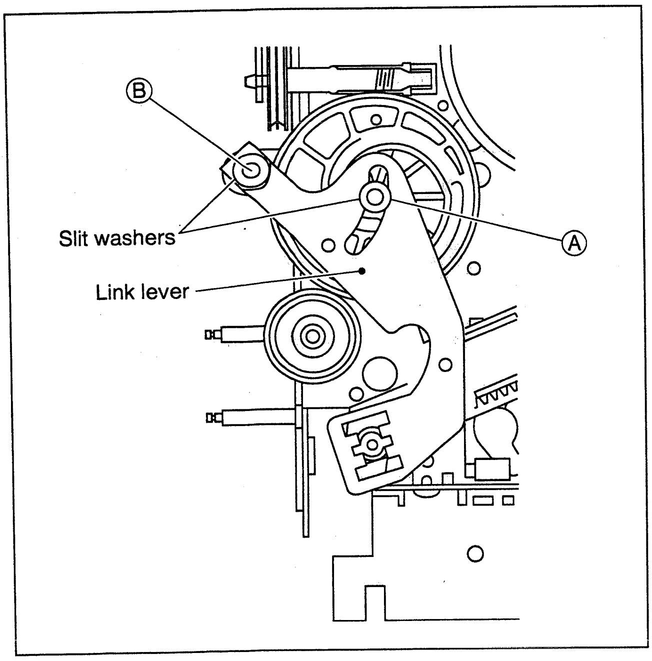


Fig. 2-3-6

2.3.6 Relay Gear, Limit Gear and Drive Gear

(1) Install the limit gear so that the notch at its outer circumference is in alignment with the register hole of the main deck.(See Fig.2-3-7)

(2) Install so that the notch at the outer circumference of the relay gear is in alignment with the notch of the main deck, and at the same time, that the hole A of the relay gear is in alignment with hole A of the limit gear and hole B of the relay gear with hole B of the drive gear. (See Fig.2-3-7)

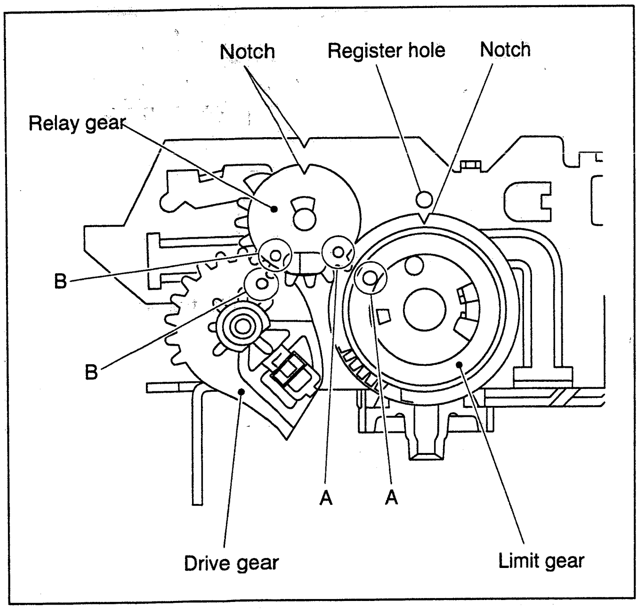


Fig. 2-3-7

2.4 COMPATIBILITY ADJUSTMENT

Notes:
- *Although compatibility adjustment is very important, it is not necessary to perform this as part of the normal servicing work. It will be required when you have replaced the audio control head, drum assembly or any part of the tape transport system.*
- *To avoid any damage to the alignment tape while performing the compatibility adjustment, get a separate cassette tape (for recording and play back) ready to be used for checking the initial tape running behavior.*

2.4.1 Checking/Adjustment of FM Waveform Linearity

(1) Connect the oscilloscope to TP106(PB FM/COL) of the main board assembly and to TP111(D.FF) of the main board assembly for external sync connection.

(2) Playing the alignment tape MHP, observe the FM waveform.

(3) Press the channel buttons (+) and (–) buttons simultaneously during playback to enter the manual tracking mode (This also brings tracking to the center.)

(4) Make sure that there is no significant level drop of the FM waveform caused by the tracking operation, with its generally parallel and linear variation ensured. Perform the following adjustments when required. (Fig.2-4-1)

(5) Slightly loosen the set screw under the pole base assembly with a 1.25 mm hexagonal wrench (Take care not to loosen too much). (Fig.2-4-2)

(6) Reduce the FM waveform while pressing the channel buttons (+, –) during playback. If a drop in level is found on the left side as shown in Fig.2-4-3, turn the guide roller of the pole base assembly (supply side) with the roller driver (PTU94002) to make the FM waveform linear.
If a drop in level is on the right side, likewise turn the guide roller of the pole base assembly (take-up side) with the guide roller to make it linear. (Fig.2-4-3)

(7) Then play MHP-L and make sure that the FM waveform varies in parallel and linearly with the tracking operation. When required, perform fine-adjustment of the guide roller of the pole base assembly (supply or take-up side).

(8) After adjustment, tighten the set screw under the pole base assembly. (Take care not to tighten too much)

(9) After tightening the set screw, play the alignment tape MHP and MHP-L again to make sure that the FM waveform has correct variation.

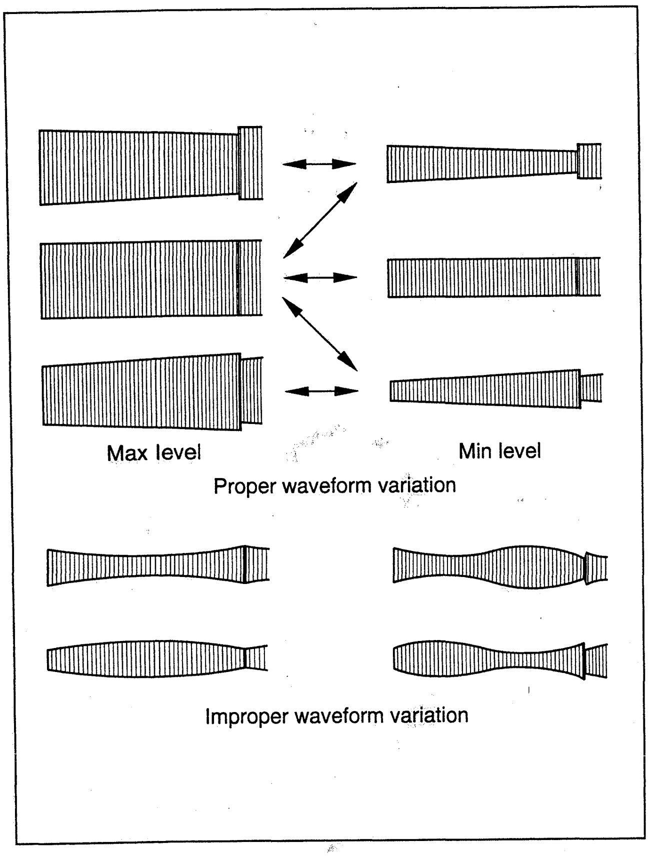

Max level
Min level
Proper waveform variation
Improper waveform variation

Fig. 2-4-1

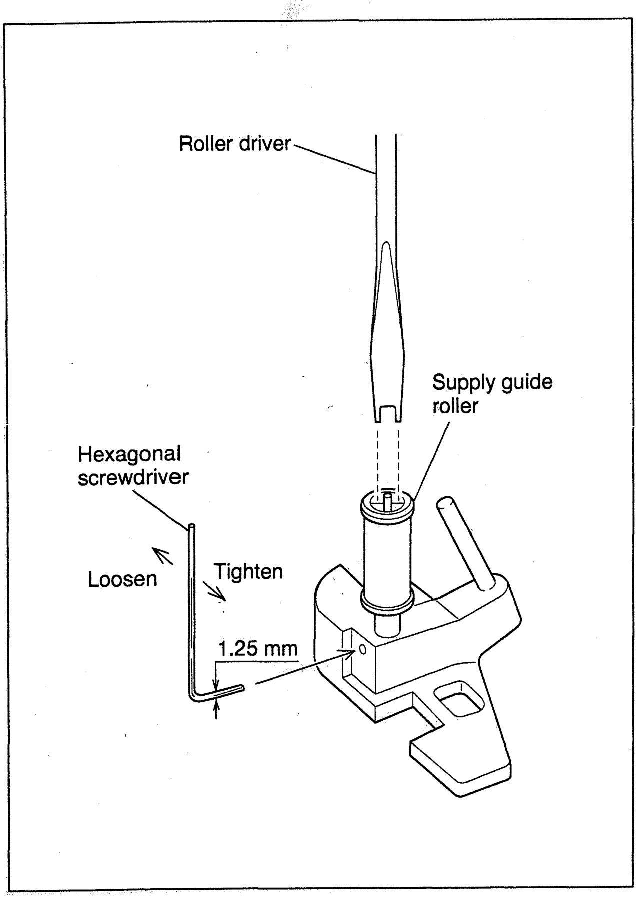

Roller driver
Supply guide roller
Hexagonal screwdriver
Loosen
Tighten
1.25 mm

Fig. 2-4-2

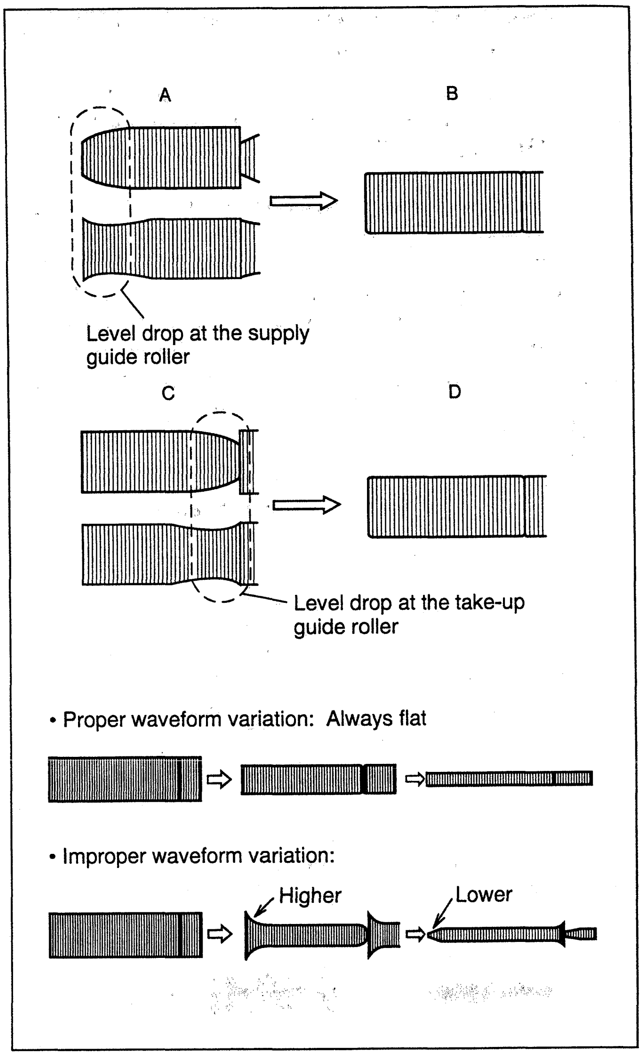

A
B
Level drop at the supply guide roller
C
D
Level drop at the take-up guide roller
• Proper waveform variation: Always flat
• Improper waveform variation:
Higher
Lower

Fig. 2-4-3

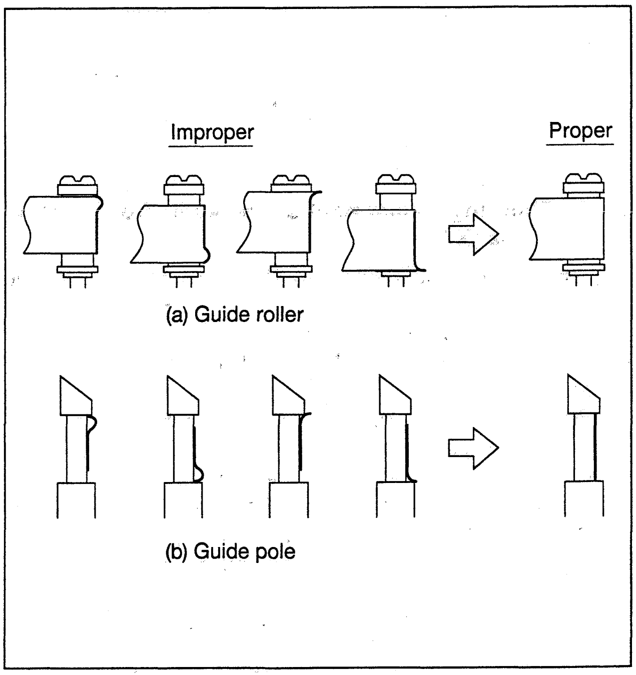

Improper
Proper
(a) Guide roller
(b) Guide pole

Fig. 2-4-4

2.4.2 Checking/Adjustment of the Height and Tilt of the Audio Control Head

Note: *Set a temporary level of the height of the A/C head in advance to make the adjustment easier. (See Fig.2-2-14)*

(1) Connect CH-1 of the oscilloscope to AUDIO OUT and CH-2 to TP4001 (CTL P) of the main board and observe the waveforms on both channels in the ALT mode.

(2) Play the alignment tape MHP and adjust it by turning screws (1), (2) and (3) little by little until the waveform of both the audio output signal and the control pulse reach maximum. Screw (1) and screw (3) are for adjustment of tilt and screw (2) for azimuth.

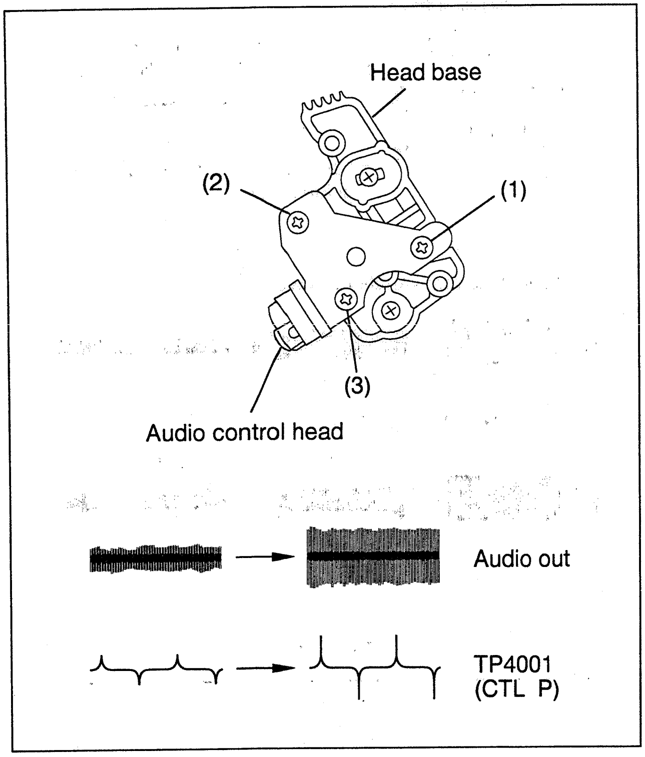


Fig. 2-4-5

2.4.3 Checking/Adjustment of the Audio Control Head Phase (X-Value)

(1) Connect the oscilloscope to TP106(PB FM/COL) of the main board assembly and to TP111(D.FF) of the main board assembly for external sync connection.

(2) Play the alignment tape MHP and observe the FM waveforms.

(3) Press the channel buttons (+) and (–) buttons simultaneously during playback to enter the manual tracking mode (This also brings tracking to the center.)

(4) Loosen screws (4) and (5) so that the A/C head position bit (PTU94010) is set as indicated in Fig.2-4-6.

(5) Turn the A/C head position and first move the audio control head fully up to the capstan head. Then gradually return the audio control head toward the drum and stop it where the FM waveform reaches its maximum for the first time. Then tighten screw (4) temporarily.

(6) Then play the alignment tape MHP-L.

(7) Press the channel buttons (+) and (–) buttons simultaneously during playback to enter the manual tracking mode (This also brings the tracking to the center.)

(8) Perform the tracking operation and make sure that the FM waveform is at its maximum.

(9) If it is not at maximum, loosen the temporarily tightened screw (4) and turn the A/C head position bit to bring the audio control head to a position, around where the waveform reaches its maximum for the first time. Then tighten screws (4) and (5).

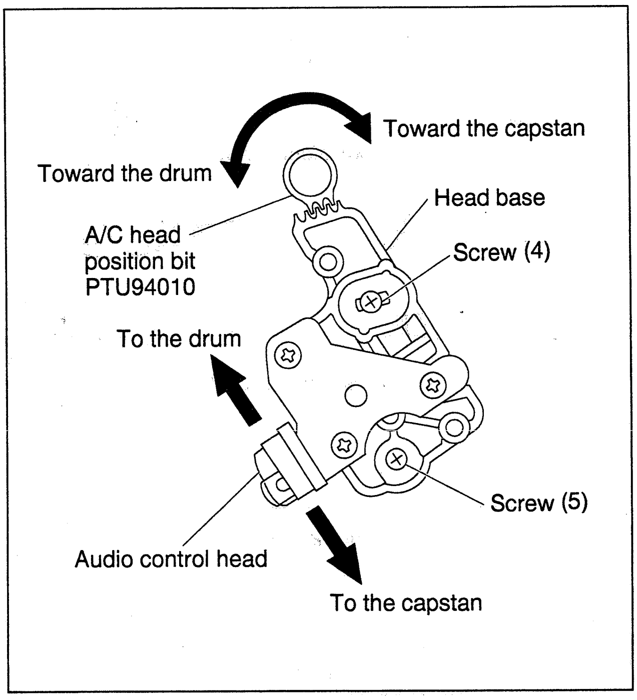


Fig. 2-4-6

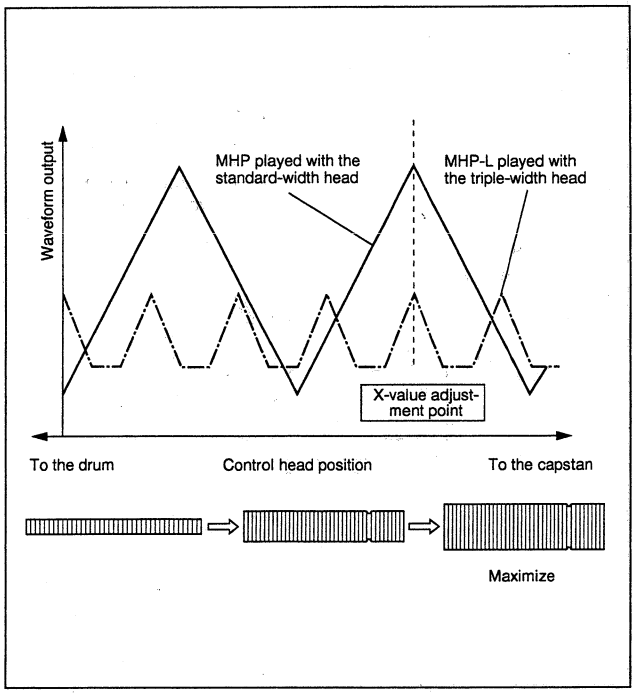


Fig. 2-4-7

2.4.4 Checking the Triple-width Auto Tracking

Note: *Set the remote control cable of the video recorder to A mode.*
(The unit set in B mode does not accept the remote control cable of the presetting unit.)

(1) Connect the oscilloscope to TP106(PB FM/COL) of the main board assembly and to TP111(D.FF) of the main board assembly for external sync connection.
(2) Playing the alignment tape MH-L and observing the FM waveform, make sure that the auto tracking operation is complete.
(3) Press the button "D" of the presetting unit twice.
(4) Make sure that the MHP-L is not ejected.
(5) If ejected, again perform the phase (X-value) adjustment of the audio control head.

2.4.5 Checking/Adjustment of the Tension Pole

(1) Check the back tension cassette gauge (PUJ48076-2) to make sure that the indicator points to 29 - 46 g-cm.
(2) If the indicated value is outside this range, carry out the following adjustment steps.
  1) Select the mechanism servicing mode. (See 1.5 MECHANISM SERVICE MODE)
  2) While in the Play mode, turn the adjustment pin with a straight-slot screwdriver while taking care not to touch the 2.5 mm dia. pole. (See Fig.2-4-8).

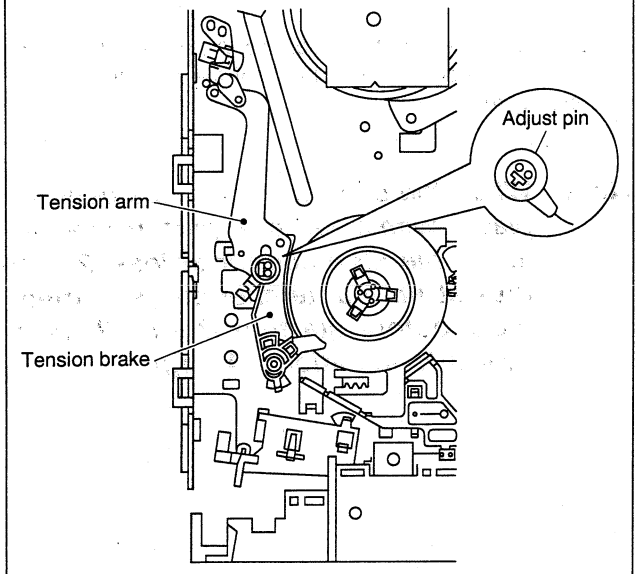


Fig. 2-4-8

2.4.6 Adjustment of the Tension Stud

(1) Adjust so that the left side of the tension stud is on the extension of the notch line of the main deck as indicated in Fig.2-4-9.

Note: *Adjustment is not usually necessary for the tension stud. Perform this adjustment only when it is out of position.*

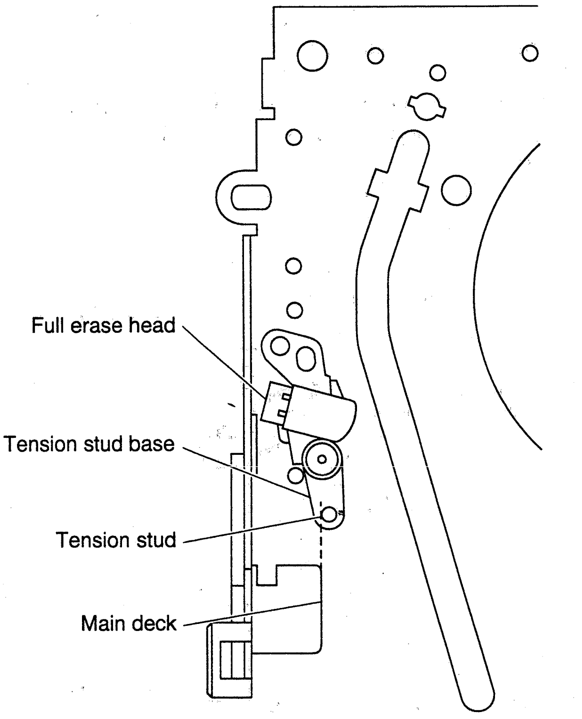


Fig. 2-4-9

2.4.7 Main Brake Torque Adjustment

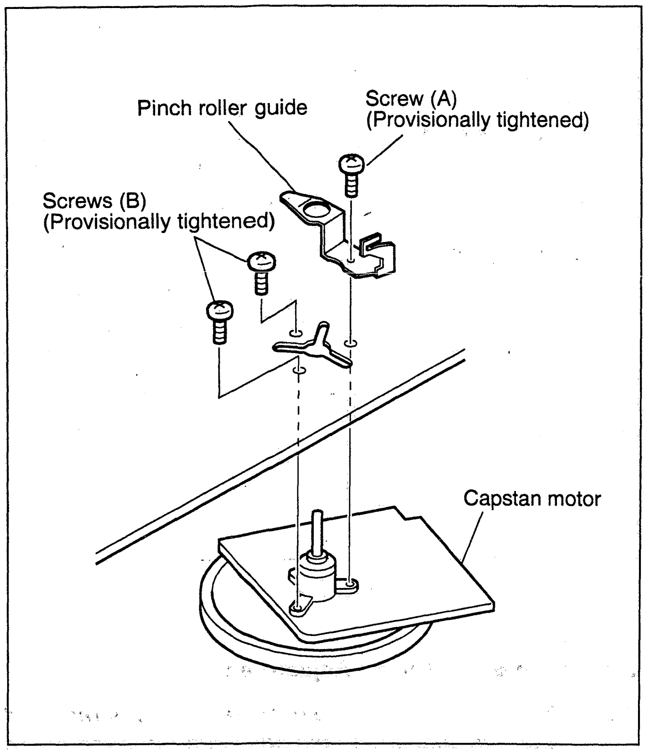
Note: *Adjustment of the main brake torque is required after the adjustment pin has been removed or the main brake or the reel base on the supply or take-up side have been replaced, removed or attached.*

(1) Rotate the pulley of the loading motor by hand to align the mark ▼ on the loading arm gear shaft with the ST marking on the control plate (i.e. set to the STOP mode position).
(2) Insert a torque gauge (PUJ48075-2) into the reel base on the side to be played, hold the torque gauge lightly, rotate it clockwise when measuring the supply side torque or counterclockwise when measuring the take-up side torque, and read the value indicated at the moment the reel base starts to slip.
(3) Make sure that the main brake torque values on the supply and take-up sides are both between $39.^{2}$ — $78.^{4}$ x 10^{-3} N-m (400 — 800 gf-cm). If the value is outside the specified range, adjust to the specified value by rotating the adjustment pin.
If an adjustment by using the adjustment pin is not possible, replace the main brake.

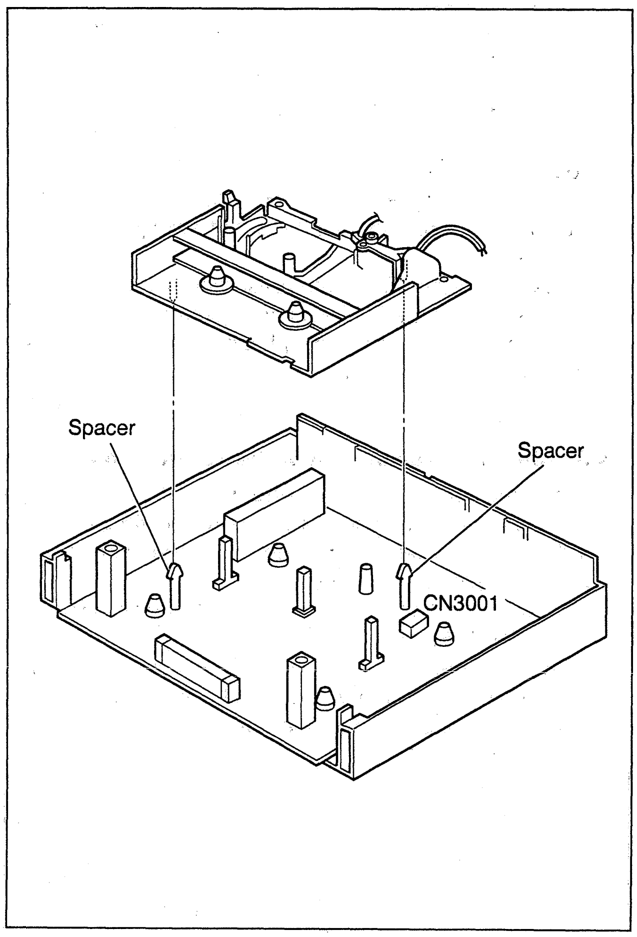
How to Mount the Capstan Motor (Centering the Mounting Position)

When the capstan motor has once been removed and then reinstalled out of the initial correct position in the rotational direction, the capstan motor current may be unstable during operation in high or low temperatures. This may result in greater Wow & Flutter and occasionally in power breakdown because of current over - load. Install the capstan motor while following the procedure given below.
(The capstan motor is centrally located when the unit is shipped from the factory.)

1. Provisionally tighten one screw (A) together the pinch roller guide and the two screws (B) securing the capstan motor.



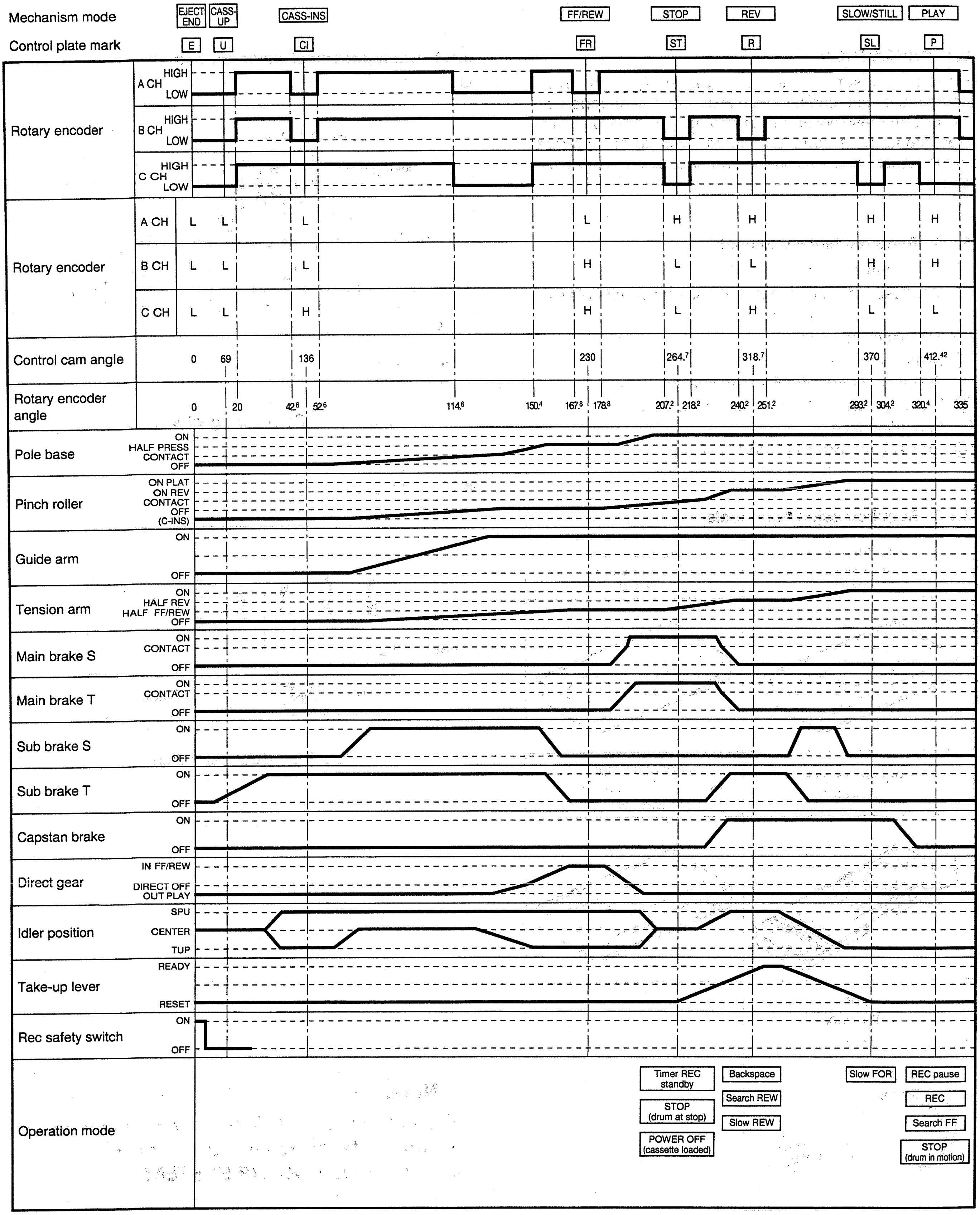
2. Install the mechanism to which the capstan motor is provisionally fastened on the bottom chassis which incorporates the Main board assembly. (No need to tighten the screws for mounting the mechanism)
   Make sure that all the connectors for the mechanism and the Main board are correctly installed.



3. Securely tighten the three screws (A), especially making sure that the connector CN3001 of the capstan motor is correctly mounted.

Note: ***When the capstan motor has been replaced with a new one, perform recording in the EP mode for at least 2 minutes at normal temperatures immediately before starting the FF/REW or SEARCH operations (Aging).***

Mechanism Timing Chart



SECTION 3
ELECTRICAL ADJUSTMENT

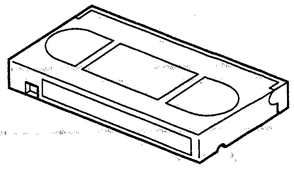
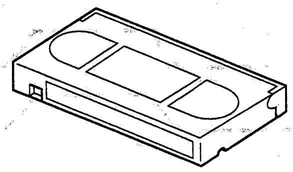
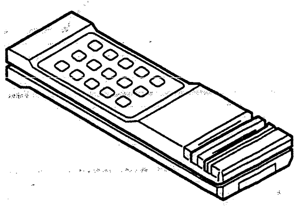
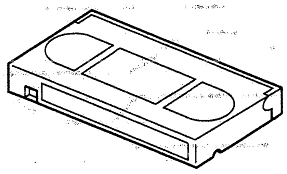
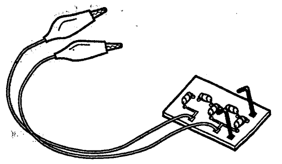
3.1 PRECAUTION

Electrical adjustment are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also do not attempt these adjustments unless the proper equipments is available.

3.1.1 Required test equipment

① Color television or monitor
② Oscilloscope: wide-band,dual-trace,triggered delayed sweep
③ Frequency counter
④ Digital voltmeter
⑤ Signal generator: RF/IF sweep/maker
⑥ Signal generator: NTSC color bar, stairstep
⑦ Recording tape
⑧ Digit-key remote controller(provided)

3.1.2 Required adjustment tools

Alignment tape (SP, stairstep) MHP	Alignment tape (EP, stairstep) MHV-2
	
Presetting unit PTU94008	Alignment tape (S-VHS, SP/EP, color bar) MH-1H
	
LPF PTU93006	
	

3.1.3 Color bar signal, color bar pattern

- Color bar signal

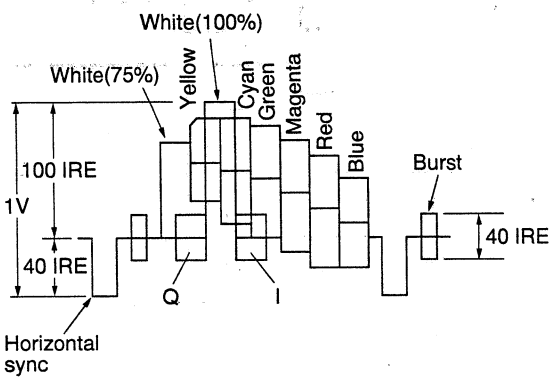

White(100%)
White(75%)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst
100 IRE
1V
40 IRE
40 IRE
Q
I
Horizontal sync

Fig.3-1-1 Color bar signal waveform

- Color bar pattern

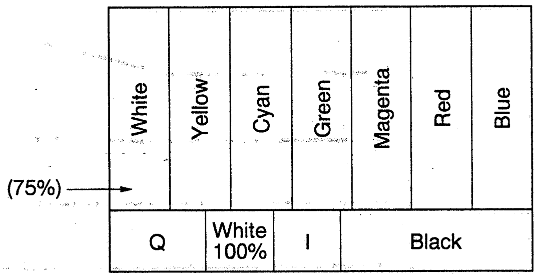

White
Yellow
Cyan
Green
Magenta
Red
Blue
(75%)
Q
White 100%
I
Black

Fig.3-1-2 Color bar pattern

Note:
*The system control circuit of this model has an automatic recognition about the ON-OFF control of the **DOCTOR SYSTEM.***

3.2 SERVO CIRCUIT

Notes:
- *Unless otherwise specified,all measurement point and adjustment parts are located on the MAIN BOARD.*
- *Set VCR to the mode A by remote controller.*
- *Use only buttons "O", depressing other buttons during adjustment may cause adjustment errors.*

3.2.1 PB switching point

Signal	• Alignment tape [MHP], Stairstep
Mode	• PB
Equipment	• Oscilloscope
Measurement point	• VIDEO OUT TERMINAL
Trigger slope (-)	• TP111(DRUM FF)
Adjustment tool	• Presetting unit [PTU94008]
Specification	• 7.0 ± 0.5H

(1) Playback the stairstep signal of the alignment tape.
(2) Connect an oscilloscope to VIDEO OUT TERMINAL and TP111 (negative slope), and then observe VIDEO OUT TERMINAL.
(3) Press the "O" button of the presetting unit.
(4) The adjustment is performed automatically.
Once the adjustment is performed, the VCR will go into the STOP mode.
(5) Playback the alignment tape again, confirm the switching point (See Fig. 3-2-2).

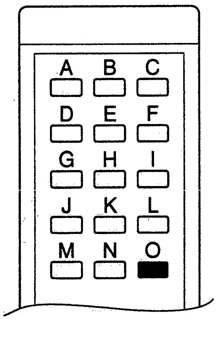


Fig. 3-2-1 Presetting unit

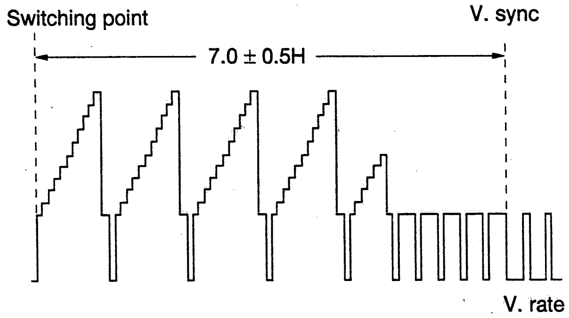


Fig. 3-2-2 PB switching point

3.2.2 Slow tracking preset

Signal	• Tuner or color bar
Mode	• SP/EP : REC → PB(SLOW) • S-VHS
Equipment	• TV-Monitor
Adjustment tool	• Presetting unit (PTU94008]
Specification	• Minimum noise

Notes:
- *Set VCR to the mode A by remote controller.*
- *Use only buttons "B" and "C", depressing other buttons during adjustment may cause adjustment errors.*

(1) Record a color bar signal in the SP mode.
(2) Playback recorded signal on the FWD slow mode.
(3) Observe the display on the TV monitor and adjust for optimum noise condition (best tracking) by depressing "B " or "C" buttons of the presetting unit.
(4) Depress the STOP button.
(5) Confirm that the bar noise is not visible on the TV monitor in the slow mode.
(6) Repeat steps (2) to (6) in the REV slow mode.
(7) Repeat steps (2) to (6) in the EP mode.

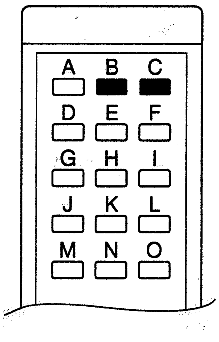


Fig. 3-2-3 Presetting unit

3.2.3 Dynamic drum preset

Signal	• Alignment tape [MHP-L], Stairstep
Mode	• Automatic tracking OFF
Equipment	• Oscilloscope
Measurement point	• TP106 (PB FM)
Trigger slope (–)	• TP111 (DRUM FF)
Adjustment tool	• Presetting unit [PTU94008]
Specification	• FM waveform flat

Note : *Set VCR to the mode A by remote controller.*

(1) Connect an oscilloscope to TP106 and external trigger from TP111 (negative slope).
(2) Playback the EP stairstep portion of the alignment tape.
(3) Set the automatic tracking control to the OFF by simultaneously pressing the CH " ▲ " and " ▼ " buttons.
(4) Adjust for maximum level of playback FM waveform by depressing CH " ▲ " or " ▼ " buttons.
(5) Adjust by pressing "M+D" or "M+E" buttons of presetting unit for FM waveform is flat as shown in Fig. 3-2-5.
(6) Adjust for half level of playback FM waveform from maximum level by depressing CH " ▲ " or " ▼ " buttons.
(7) Readjust by pressing "M+D" or "M+E" buttons of presetting unit for FM waveform is flat as shown in Fig. 3-2-5.
(8) Record the color bar signal by EP mode and play it back in EP FWD slow mode.
(9) Repeat steps (4) and (5).

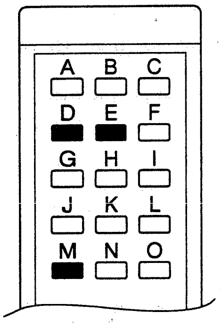


Fig. 3-2-4 Presetting unit

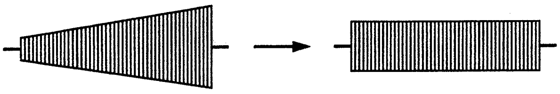


Fig. 3-2-5 PB FM

3.3 VIDEO CIRCUIT

Notes:
- *Unless otherwise specified,all measurement point and adjustment parts are located on the MAIN BOARD.*
- *VIDEO circuit adjustments are performed by the EVR system by use of the presetting unit and digit-key remote controller.*
- *S-INPUT means Y/C separated video signal in the chart.*
- *Set VCR to the mode A by remote controller.*

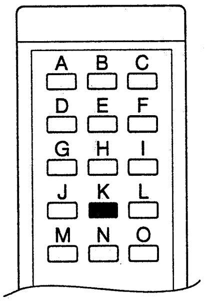


Fig. 3-3-1 Presetting unit

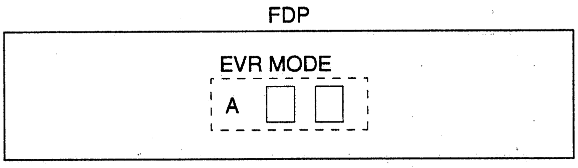


Fig. 3-3-2 EVR mode

3.3.1 Y level

Signal	• Color bar
Mode	• EE
Equipment	• Oscilloscope
Measurement point	• Y OUT TERMINAL(75Ω TERMINATION)
Adjustment tool	• Presetting unit • Digit-key remote controller
EVR mode	• A : 11
Specification	• 1.00 ± 0.03 Vp-p (terminated)

(1) Connect an oscilloscope to Y OUT TERMINAL.
(2) Set EVR mode by pressing "K" button of the presetting unit more than 2 seconds.
(3) Set "A : 11" pressing 1 digit key twice of the remote controller.
(4) Adjust CH "▲" or "▼" buttons for 1.00 ± 0.03 Vp-p (See Fig. 3-3-3).
(5) Set normal VCR mode by pressing "K" button of the presetting unit again so adjustment data is memorized.

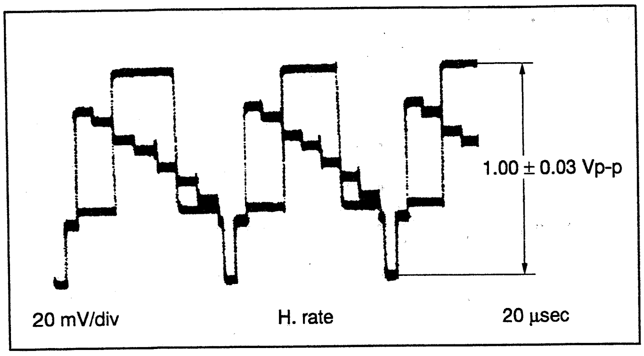


Fig. 3-3-3 EE Y level

3.3.2 SP/EP REC color level

Signal	• Alignment tape [MH-1H] • Color bar
Mode	• PB • REC → PB : SP/EP • S-VHS
Equipment	• Oscilloscope
Measurement point	• PB color out
Trigger slope (–)	• TP111 (DRUM FF)
Adjustment tool	• Presetting unit • Digit-key remote controller • LPF fixture (PTU93006)
EVR mode	• A : 2
Specification	• "B" x 150 ± 5% : SP • "B" x 110 ± 5% : EP

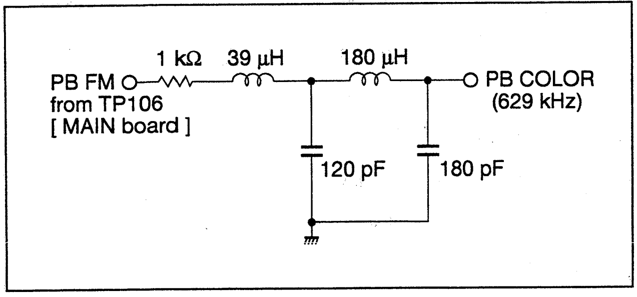


Fig. 3-3-4 LPF

(1) Connect an oscilloscope to PB COLOR of a LPF(refer to Fig. 3-3-4) and TP111(negative slope) on the MAIN board.
(2) Playback the SP color bar signal of MH-1H alignment tape.
(3) Set the tracking of the Front panel to the Auto tracking off position by simultaneously pressing the CH "▲" and "▼" buttons.
(4) Adjust by pressing the CH "▲" or "▼" buttons of the Front panel for maximum level of the color waveform and make a note of the higher color level "B".
(5) Press the STOP/EJECT button and eject the MH-1H alignment tape.
(6) Set EVR mode by pressing "K" button of the presetting unit more than 2 seconds.
(7) Set "A : 2" by pressing 2 digit key of the remote controller.
(8) Before recording, adjust CH "▲" or "▼" buttons of the remote controller so that the higher level channel becomes 150 ± 5% : SP (110 ± 5% : EP) of the note "B" level during playback as shown in Fig. 3-3-5.
(9) Record a color bar signal in SP (EP) mode, and playback recorded color bar signal.
(10) Set normal VCR mode by pressing "K" button again so adjustment data is memorized.

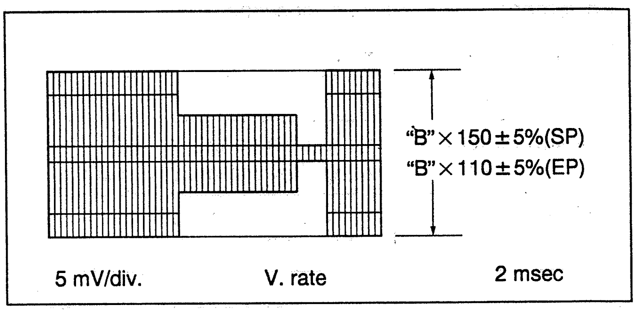


Fig. 3-3-5 REC color level

3.3.3 PB Y level (S-VHS/VHS)

Signal	• Color bar • S-VHS/VHS
Mode	• PB : SP
Equipment	• Oscilloscope
Measurement point	• Y OUT TERMINAL(75Ω TERMINATION)
Adjustment tool	• Presetting unit • Digit-key remote controller
EVR mode	• A : 11
Specification	• 1.00 ± 0.03Vp-p (terminated)

(1) Connect an oscilloscope to Y OUT TERMINAL.
(2) Set EVR mode by pressing "K" button of the presetting unit more than 2 seconds.
(3) Set "A : 11" pressing 1 digit key twice of the remote controller.
(4) Record a color bar signal in the S-VHS mode, and playback recorded color bar signal.
(5) Adjust CH "▲" or "▼" buttons for 1.00 ± 0.03Vp-p as shown in Fig. 3-3-6.
(6) Set normal VCR mode by pressing "K" button of the presetting unit again so adjustment data is memorized.
(7) Repeat steps (1) to (6) in the VHS mode.

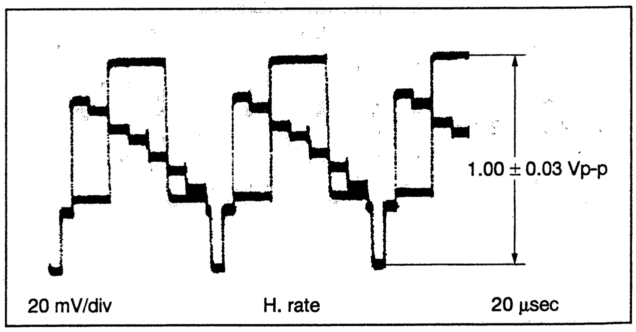


Fig. 3-3-6 PB Y level

3.3.4 S-VHS VIDEO EQ

Signal	• S INPUT • Video sweep
Mode	• REC → PB : SP/EP • S-VHS • DUBBING REC : OFF PB : ON
Equipment	• Oscilloscope
Measurement point	• Y OUT TERMINAL(75Ω TERMINATION)
Trigger slope (–)	• TP111 (DRUM FF)
Adjustment tool	• Presetting unit • Digit-key remote controller
Specification	• 3.6 ± 0.2 scale : SP • 2.8 ± 0.2 scale : EP

(1) Connect an oscilloscope to Y OUT TERMINAL and TP111 (negative slope).
(2) Record a video sweep signal in S-VHS SP mode, then play it back.
(3) Set EVR mode by pressing "K" button of the presetting unit more than 2 seconds.
(4) Set "A : 3" by pressing 3 digit key of the remote controller.
(5) When assuming the 100 KHz sweep signal marker on the bigger channel is four scales on the oscilloscope, adjust CH "▲" or "▼" buttons on the front panel or the 10-key remote control so that the 3.58 MHz is set at 3.6 ± 0.2 scale (–2 ± 0.5 dB) while observing Y OUT of the S output (See Fig. 3-3-7).
(6) The EVR mode is canceled by pressing the "K" button after the adjustment, and the adjusted value is stored.
(7) Also, it records and plays back the sweep signal in the EP mode.
(8) Carry out the step (3) and (4).
(9) When assuming the 100 kHz sweep signal marker on the bigger channel is four scales on the oscilloscope, adjust CH "▲" or "▼" buttons on the front panel or the 10-key remote control so that the 3.58 MHz is set at 2.8 ± 0.2 scale (–3 ± 0.5 dB) while observing Y OUT of the S output (See Fig. 3-3-7).

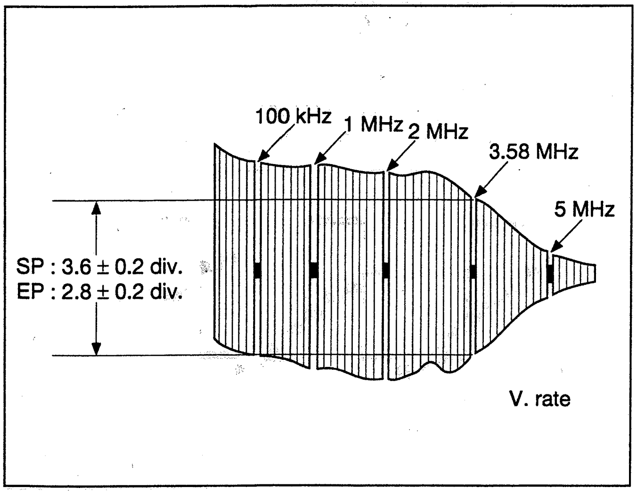


Fig. 3-3-7 S-VHS VIDEO EQ

3.3.5 D/A level

Signal	•Color bar •S-VHS
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•CN1002-28pin (Y OUT) [3D SVHS board]
Adjustment part	•VR1401 (DA Y LEVEL) [3D SVHS board]
Specification (NOTE)	•2.05 Vp-p (REFERENCE VALUE)

(1) Connect the oscilloscope to the CN1002-28 pin(Y OUT) on the 3D SVHS board.
(2) Confirm the Y level value during external S input.
(3) Switch the input signal to the external input, then adjust the VR1401 on the 3D SVHS board so that the Y level value becomes the same level value which was confirmed at the step (2).

Note: • *The adjusted value of 2.05 Vp-p is a reference value which should be obtained during external S input. The value should be adjusted to the one which was confirmed at step (2).*

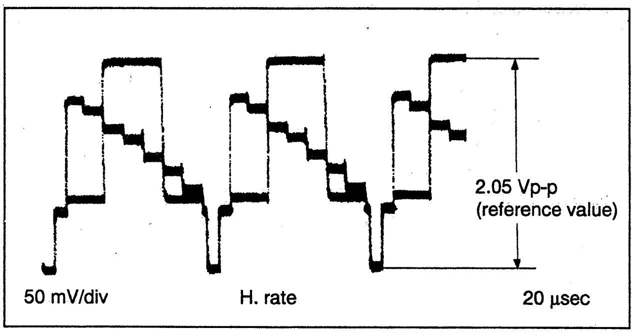


Fig. 3-3-8 D/A LEVEL

3.3.6 Auto picture

Signal	• Monoscope
Mode	• REC → PB : SP/EP • S-VHS
Adjustment tool	• Presetting unit [PTU94008]
Specification	• STOP mode

(1) Record a monoscope signal in the SP mode.
(2) Playback the recorded signal.
(3) Press the "L" button of the presetting unit during playback.
(4) Confirm that VCR will go into the STOP mode.
(5) Repeat steps (2) to (4) in the EP mode.

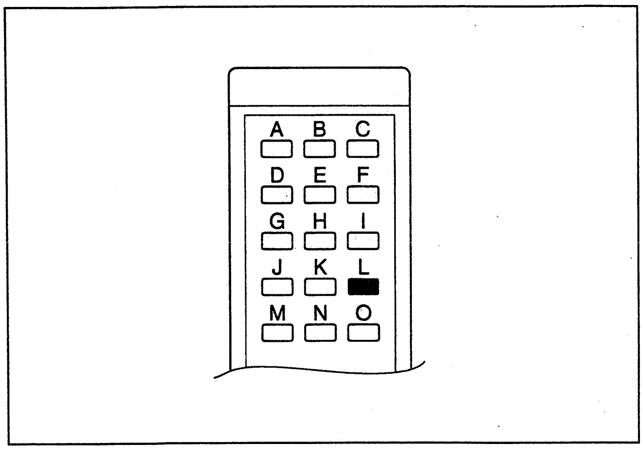


Fig. 3-3-9 Presetting unit

3.4 ON SCREEN CIRCUIT

Notes:
- *Unless otherwise specified,all measurement point and adjustment parts are located on the MAIN BOARD.*
- *Set VCR to the mode A by remote controller.*

3.4.1 Character position

Signal	• No signal
Mode	• EE
Equipment	• TV-monitor
Adjustment tool	• Presetting unit [PTU94008] • Digit-key remote controller
Specification	• Character center

(1) Press the MENU button and display the on screen character.

(2) Observe TV-monitor and center position of character by pressing "H" button of the presetting unit.

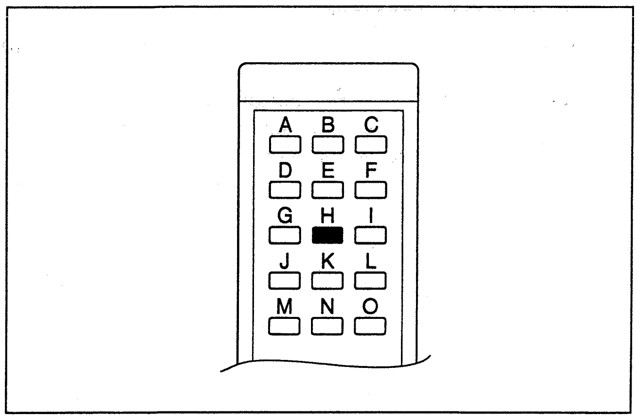


Fig. 3-4-1 Presetting unit

3.5 DEMODULATOR CIRCUIT

Notes:
- *Unless otherwise specified,all measurement point and adjustment parts are located on the DEMODULATOR BOARD.*
- *DEMODULATOR circuit adjustments are preformed by the EVR system by use of the presetting unit and digit-key remote controller.*
- *Unless otherwise specified,set an audio multiplex TV signal generator as follows;*
  RF signal : 70 dBu / 75 Ω,color bar 87.5% modulation.
- *Set VCR to the mode A by remote controller.*
- *No signal: Connect (–)terminal of the capacitor C1505 to the GND(Ground).*

3.5.1 Input level

Signal	• RF signal
Mode	• EE Tuner
Equipment	• Audio level meter
Measurement point	• IC1501- pin 26
Adjustment tool	• Presetting unit [PTU94008], Digit-key remote controller
EVR mode	• A : 20
Specification	• 500 ± 10 mVrms

(1) Connect an audio level meter to IC1501- pin 26.

(2) Set EVR mode by pressing "K" button of the presetting unit more than 3 seconds.

(3) Set "A : 20" pressing 2 and 0 digit keys of the remote controller.

(4) Set a signal generator mode to mono 300Hz.

(5) Adjust CH " ▲ " or " ▼ " buttons for 500 ± 10 mVrms.

(6) Set normal VCR mode by pressing "K" button of the presetting unit again so adjustment data is memorized.

3.5.2 Stereo VCO

Signal	• No signal
Mode	• EE Tuner
Equipment	• Frequency counter
Measurement point	• IC1501- pin 26
Adjustment tool	• Presetting unit [PTU94008], Digit-key remote controller
EVR mode	• A : 21
Specification	• 15.73 ± 0.1 KHz

(1) Connect a frequency counter to IC1501- pin 26.

(2) Set EVR mode by pressing "K" button of the presetting unit more than 3 seconds.

(3) Set "A : 21" pressing 2 and 1 digit keys of the remote controller.

(4) Adjust CH " ▲ " or " ▼ " buttons for 15.73 ± 0.1 KHz.
(5) Set normal VCR mode by pressing "K" button of the presetting unit again so adjustment data is memorized.

3.5.3 Stereo filter

Signal	• No signal
Mode	• EE Tuner
Equipment	• Oscilloscope
Measurement point	• IC1501- pin 26
Adjustment tool	• Presetting unit [PTU94008], Digit-key remote controller
EVR mode	• A : 22
Specification	• Minimun level

(1) Connect an oscilloscope to IC1501- pin 26.
(2) Set EVR mode by pressing "K" button of the presetting unit more than 3 seconds.
(3) Set "A : 22" pressing 2 digit key twice of the remote controller.
(4) Adjust CH " ▲ " or " ▼ " buttons for minimum level.
(5) Set normal VCR mode by pressing "K" button of the presetting unit again so adjustment data is memorized.

3.5.4 Separation - 1

Signal	• RF signal
Mode	• EE Tuner
Equipment	• Audio level meter
Measurement point	• IC1501- pin 26
Adjustment tool	• Presetting unit [PTU94008], Digit-key remote controller
EVR mode	• A : 23
Specification	• Minimum level

(1) Connect an audio level meter to IC1501- pin 26.
(2) Set EVR mode by pressing "K" button of the presetting unit more than 3 seconds.
(3) Set "A : 23" pressing 2 and 3 digit keys of the remote controller.
(4) Set a signal generator mode to alternate L-ch 300Hz 14% modulated.
(5) Adjust CH " ▲ " or " ▼ " buttons for minimum level.
(6) Set normal VCR mode by pressing "K" button of the presetting unit again so adjustment data is memorized.

3.5.5 Separation - 2

Signal	• RF signal
Mode	• EE Tuner
Equipment	• Audio level meter
Measurement point	• IC1501- pin 26
Adjustment tool	• Presetting unit [PTU94008], Digit-key remote controller
EVR mode	• A : 24
Specification	• Minimum level

(1) Connect an audio level meter to IC1501- pin 26.
(2) Set EVR mode by pressing "K" button of the presetting unit more than 3 seconds.
(3) Set "A : 24" pressing 2 and 4 digit keys of the remote controller.
(4) Set a signal generator mode to alternate L-ch 5Hz 14% modulated.
(5) Adjust CH " ▲ " or " ▼ " buttons for minimum level.
(6) Set normal VCR mode by pressing "K" button of the presetting unit again so adjustment data is memorized.

3.5.6 SAP VCO

Signal	• No signal
Mode	• EE Tuner
Equipment	• Frequency counter
Measurement point	• IC1501- pin 26
Adjustment tool	• Presetting unit [PTU94008], Digit-key remote controller
EVR mode	• A : 25
Specification	• 78.67 ± 0.5 KHz

(1) Connect a frequency counter to IC1501- pin 26.
(2) Set EVR mode by pressing "K" button of the presetting unit more than 3 seconds.
(3) Set "A : 25" pressing 2 and 5 digit keys of the remote controller.
(4) Adjust CH " ▲ " or " ▼ " buttons for 78.67 ± 0.5 KHz.
(5) Set normal VCR mode by pressing "K" button of the presetting unit again so adjustment data is memorized.

3.6 AUDIO CIRCUIT

Notes:
- *Unless otherwise specified, all measurement point and adjustment parts are located on the MAIN BOARD.*
- *This adjustment should be done after the video circuit SP and EP REC color level are adjusted.*
- *GND(Ground) should be taken from the tuner board shield.*

3.6.1 REC FM level

Signal	• AUX • VIDEO : Color bar • AUDIO : No signal
Mode	• REC → PB : EP • S-VHS
Equipment	• Oscilloscope
Measurement point	• TP2253 (A. PB. FM)
Trigger slope (–)	• TP111 (DRUM FF)
Adjustment part	• VR2251 (FMA REC FM)
Specification	• 800 ± 100 mVp-p

(1) Connect an oscilloscope to TP2253.
(2) Record a color bar signal without an audio signal in S-VHS EP mode then playback.
(3) Adjust VR2251 for 800mVp-p playback level of higher channel level before recording.
(4) Confirm that the lower channel level is more than 550 mVp-p.

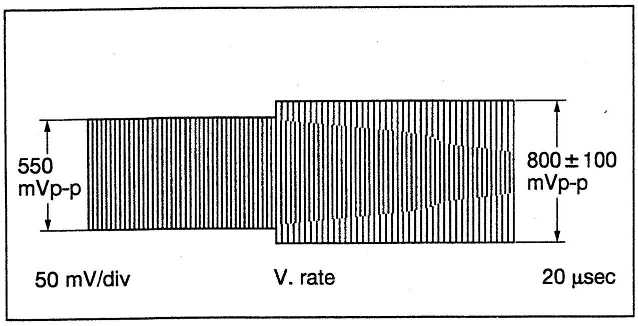


Fig. 3-6-1 Audio REC FM level

SECTION 4
CHARTS AND DIAGRAMS

NOTES OF SCHEMATIC DIAGRAM

Safety precautions
The Components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufacturer's recommended parts.

1. Units of components on the schematic diagram

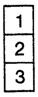
Unless otherwise specified.

1) All resistance values are in ohm, 1/6 W, 1/8 W (refer to parts list).
   Chip resistors are 1/16 W.
   K: KΩ (1000Ω), M: MΩ (1000KΩ)
2) All capacitance values are in μF, (P: PF).
3) All inductance values are in μH, (m: mH).
4) All diodes are 1SS133, MA165 or IN4148M (refer to parts list).

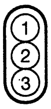
2. Indications of control voltage

AUX : Active at high
$\overline{\text{AUX}}$ or AUX(L) : Active at low

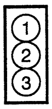
3. Interpreting Connector indications



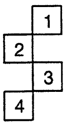
Removable connector



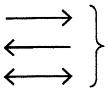
Wire soldered directly on board



Non-removable Board connector



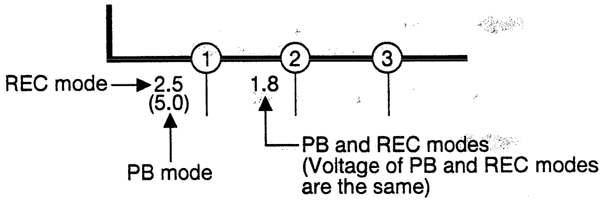
Board to Board



Connected pattern on board
The arrows indicate signal path

4. Voltage measurement

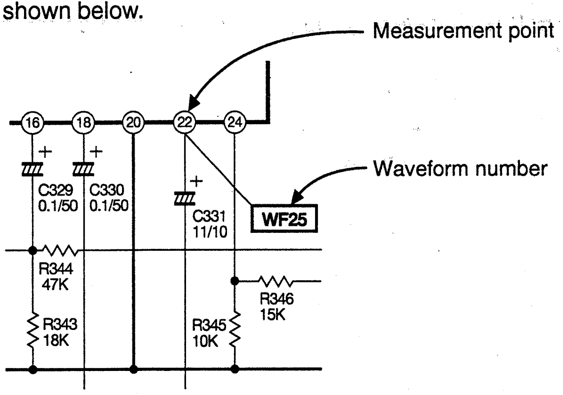
1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
   — : Unmeasurable or unnecessary to measure
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, Normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test charts in the E-E mode
4) Indication on schematic diagram
   Voltage Indications for REC and PB mode on the schematic diagram are as shown below.


1
2
3
REC mode
2.5
(5.0)
1.8
PB mode
PB and REC modes
(Voltage of PB and REC modes are the same)

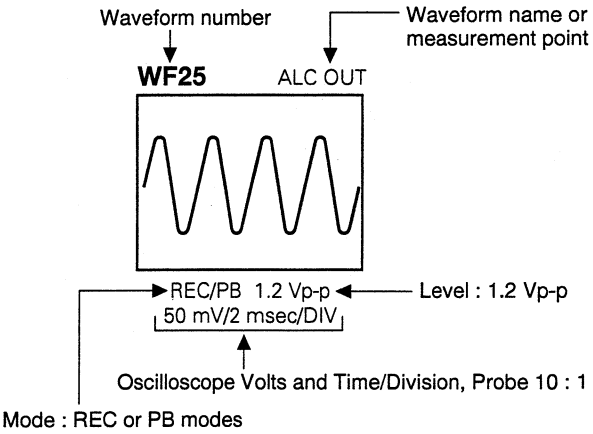
Note: If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

5. Waveform measurement

1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test chatrs in the E-E mode
4) Indication on schematic diagram
   Waveform indications on the schematic diagram are as shown below.


Measurement point
16
18
20
22
24
Waveform number
C329
0.1/50
C330
0.1/50
C331
11/10
WF25
R344
47K
R346
15K
R343
18K
R345
10K

5) Waveform indications


Waveform number
Waveform name or measurement point
WF25
ALC OUT
REC/PB 1.2 Vp-p
Level : 1.2 Vp-p
50 mV/2 msec/DIV
Oscilloscope Volts and Time/Division, Probe 10 : 1
Mode : REC or PB modes

6. Signal path Symbols

The arrows indicate the signal path as follows.

⇨ Playback signal path

▭▶ Playback and recording signal path

➡ Recording signal path (including E-E signal path)

⇨▷ Capstan servo path

➡▶ Drum servo path

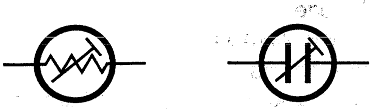
(Example)

⇨ R-Y Playback R-Y signal path

➡ Y Recording Y signal path

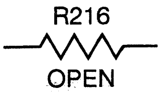
7. Indication of the parts for adjustments

The parts for the adjustments are surrounded with the circle as shown below.



8. Indication of the parts not mounted on the circuit board

"OPEN" is indicated by the parts not mounted on the circuit board.



CIRCUIT BOARD NOTES

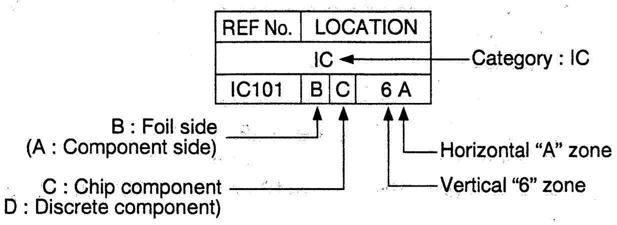
1. Foil and Component sides

1) Foil side (B side) :
Parts on the foil side seen from foil face (pattern face) are indicated.

2) Component side (A side) :
Parts on the component side seen from component face (parts face) indicated.

2. Parts location guides

Parts location are indicated by guide scale on the circuit board.


REF No.
LOCATION
IC
Category : IC
IC101
B
C
6 A
B : Foil side
(A : Component side)
C : Chip component
D : Discrete component)
Horizontal "A" zone
Vertical "6" zone

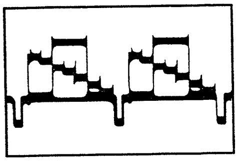
Note:

For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION Edition 4 No. 82054D (January 1994).

WAVEFORMS

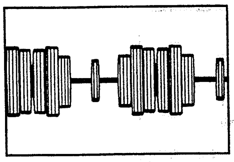
— VIDEO —

WF1 IC1003-1



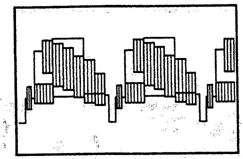
REC 1.1 p-p
20 mV/20 µsec/DIV

WF2 IC1005-12



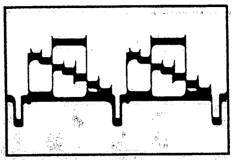
REC 0.68 Vp-p
20 mV/20 µsec/DIV

WF3 IC1001-48



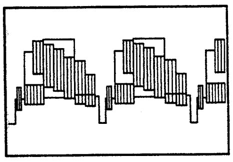
REC 1.1 Vp-p
20 mV/20 µsec/DIV

WF4 IC1001-46



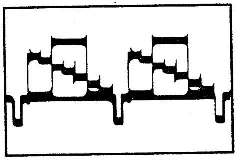
REC 1.2 Vp-p
20 mV/20 µsec/DIV

WF5 IC1001-39



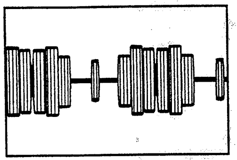
REC 1.9 Vp-p
50 mV/20 µsec/DIV

WF6 IC1001-37



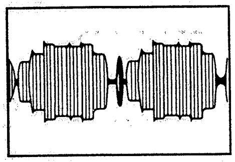
REC 0.9 Vp-p
20 mV/20 µsec/DIV

WF7 IC1001-35



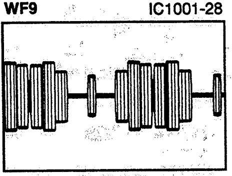
REC 0.76 Vp-p
20 mV/10 µsec/DIV

WF8 IC1001-33



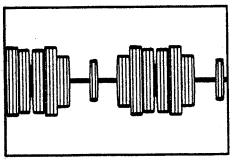
PB 0.38 Vp-p
10 mV/10 µsec/DIV

WF9 IC1001-28



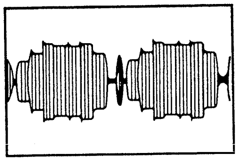
REC 0.72 Vp-p
20 mV/10 µsec/DIV

WF10-1 IC1001-26



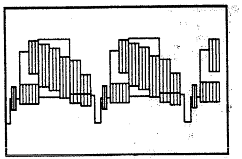
REC 1.4 Vp-p
50 mV/10 µsec/DIV

WF10-2 IC1001-26



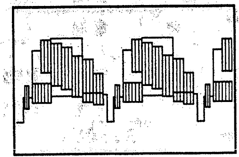
PB 1.1 Vp-p
20 mV/10 µsec/DIV

WF11 IC1001-25



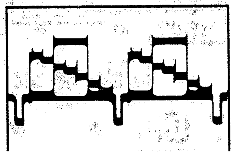
REC/PB 2.2 Vp-p
50 mV/20 µsec/DIV

WF12 IC1001-23



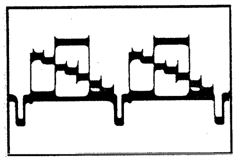
REC/PB 2.3 Vp-p
50 mV/20 µsec/DIV

WF13 IC1001-21



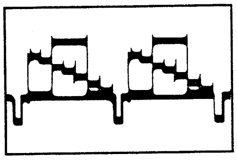
REC/PB 2.2 Vp-p
50 mV/20 µsec/DIV

WF14 IC1001-5



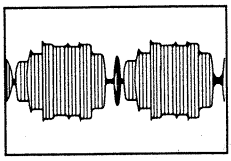
PB 0.6 Vp-p
20 mV/20 µsec/DIV

WF15 IC1001-56



REC/PB 0.64 Vp-p
20 mV/20 µsec/DIV

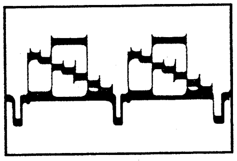
WF16 CN1001-22



PB 0.67 Vp-p
20 mV/10 µsec/DIV

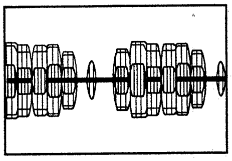
— 3D/TBC —

WF1 IC1401-73



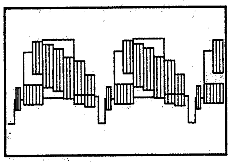
REC 0.9 Vp-p
20 mV/20 µsec/DIV

WF2 IC1401-75



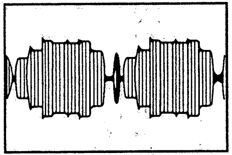
PB 1.0 Vp-p
20 mV/10 µsec/DIV

WF3 IC1401-82



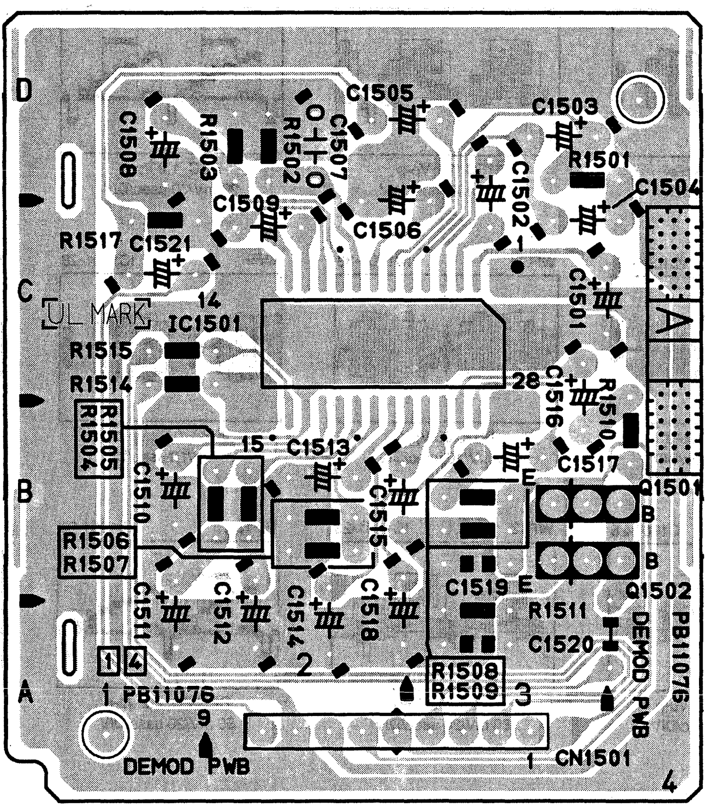
REC 1.9 Vp-p
50 mV/20 µsec/DIV

WF4 IC1401-87



PB 1.4 Vp-p
50 mV/10 µsec/DIV

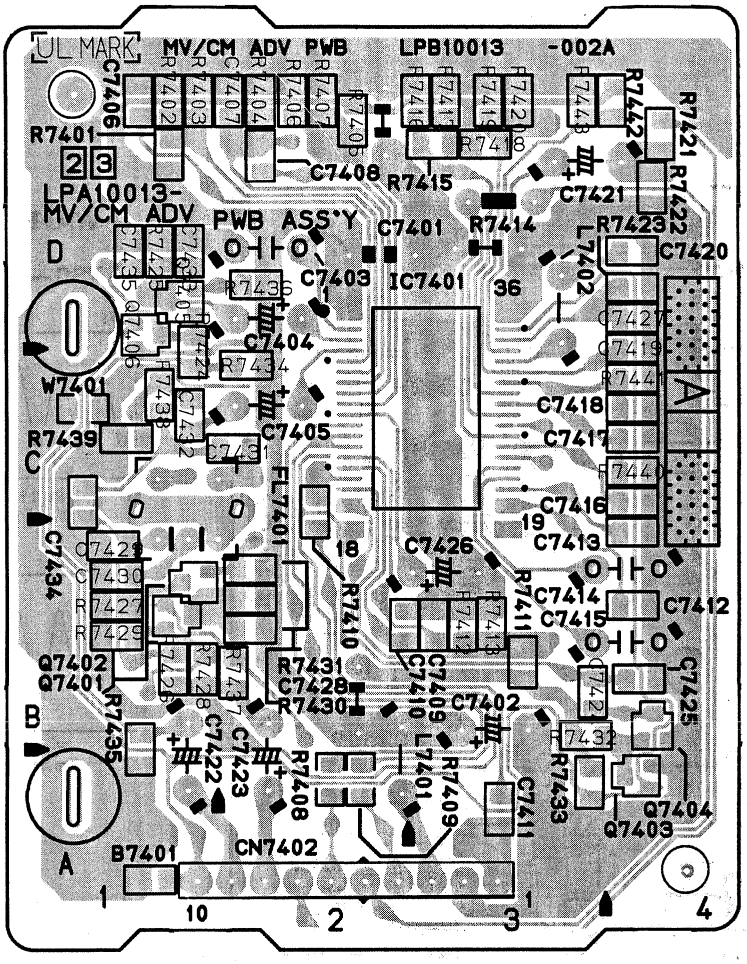
4.14 DEMODULATOR CIRCUIT BOARD


D
C
B
A
C1505
C1503
C1508
R1503
R1502
C1507
R1501
C1504
C1502
C1509
C1506
R1517
C1521
1
C1501
14
UL MARK
IC1501
A
R1515
R1514
28
C1516
R1510
R1505
R1504
15
C1513
C1517
C1510
E
Q1501
C1515
B
R1506
R1507
B
C1519
E
Q1502
C1511
C1512
C1514
C1518
R1511
C1520
DEMOD PWB
PB11076
1
4
PB11076
2
R1508
R1509
3
9
DEMOD PWB
1
CN1501
4

COMPONENT PARTS LOCATION GUIDE (DEMODULATOR)

REF.NO.	LOCATION			REF.NO.	LOCATION			REF.NO.	LOCATION		
CAPACITOR				C1518	A	D	3A	**RESISTOR**			
C1501	A	D	4C	C1519	A	D	3B	R1501	A	D	4C
C1502	A	D	3D	C1520	A	D	3A	R1502	A	D	2C
C1503	A	D	4D	C1521	A	D	2C	R1503	A	D	2C
C1504	A	D	4C					R1504	A	D	2B
C1505	A	D	3D	**CONNECTOR**				R1505	A	D	2B
C1506	A	D	3C					R1506	A	D	2B
C1507	A	D	2C	CN1501	A	D	3A	R1507	A	D	2B
C1508	A	D	1D					R1508	A	D	3B
C1509	A	D	2C	**IC**				R1509	A	D	3B
C1510	A	D	1B					R1510	A	D	4B
C1511	A	D	1A	IC1501	B	C	2C	R1511	A	D	3A
C1512	A	D	2A					R1514	A	D	2B
C1513	A	D	2B	**TRANSISTOR**				R1515	A	D	2C
C1514	A	D	2A					R1517	A	D	2C
C1515	A	D	3B	Q1501	A	D	3B				
C1516	A	D	3C	Q1502	A	D	3B				
C1517	A	D	3B								

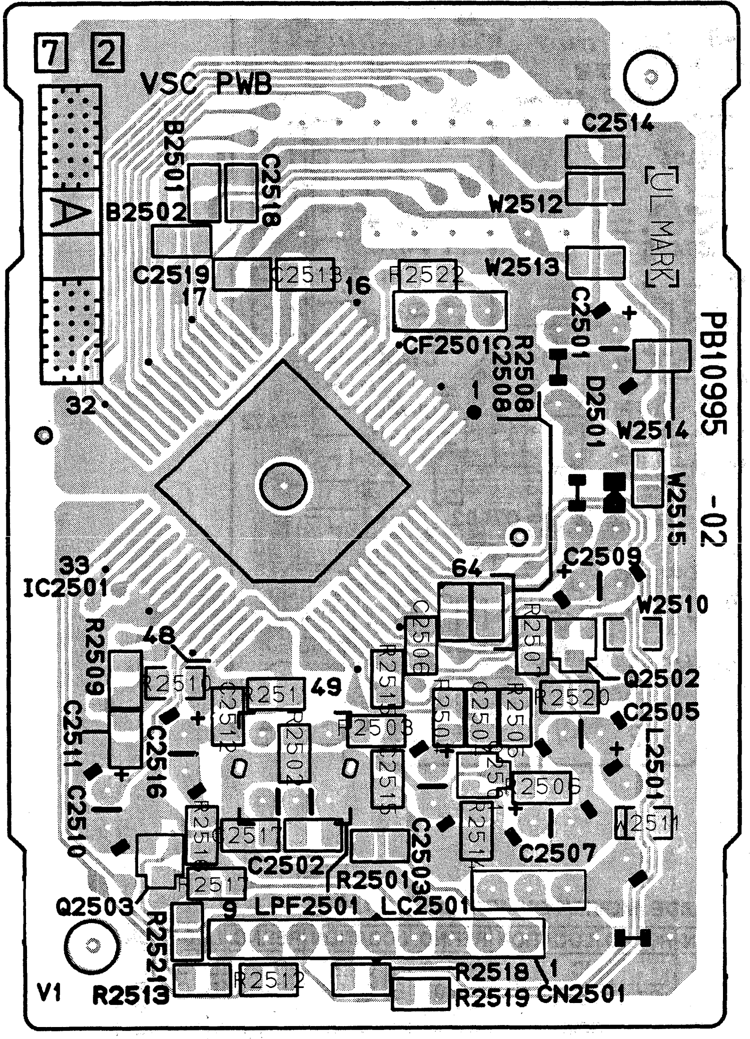
4.17 MOVIE/COMMERCIAL ADVANCE CIRCUIT BOARD



COMPONENT PARTS LOCATION GUIDE (MOVIE/COMMERCIAL ADVANCE)

REF.NO.	LOCATION		
CAPACITOR			
C7401	A	D	2D
C7402	A	D	3B
C7403	A	D	2D
C7404	A	D	2D
C7405	A	D	2C
C7406	B	C	1E
C7407	B	C	2E
C7408	B	C	2D
C7409	B	C	3B
C7410	B	C	2B
C7411	B	C	3A
C7412	B	C	4B
C7413	B	C	4B
C7414	A	D	4B
C7415	A	D	4B
C7416	B	C	4C
C7417	B	C	4C
C7418	B	C	4C
C7419	B	C	4C
C7420	B	C	4D
C7421	A	D	3D
C7422	A	D	1B
C7423	A	D	2A
C7424	B	C	3B
C7425	B	C	4B
C7426	A	D	3B
C7427	B	C	4D
C7428	B	C	2B
C7429	B	C	1B
C7430	B	C	1B
C7431	B	C	2C
C7432	B	C	1C
C7433	B	C	1D
C7434	B	C	1C
C7435	B	C	1D
CONNECTOR			
CN7402	A	D	3A
IC			
IC7401	B	C	3C
COIL			
L7401	A	D	2B
L7402	A	D	3C
TRANSISTOR			
Q7401	B	C	1B
Q7402	B	C	1B
Q7403	B	C	4A
Q7404	B	C	4B
Q7405	B	C	1D
Q7406	B	C	1C
RESISTOR			
R7401	B	C	1D
R7402	B	C	1E
R7403	B	C	1E
R7404	B	C	2E
R7405	B	C	2E
R7406	B	C	2E
R7407	B	C	2E
R7408	B	C	2A
R7409	B	C	2A
R7410	B	C	2C
R7411	B	C	3B
R7412	B	C	3B
R7413	B	C	3B
R7414	A	D	3D
R7415	B	C	3D
R7416	B	C	3E
R7417	B	C	3E
R7418	B	C	3D
R7419	B	C	3E
R7420	B	C	3E
R7421	B	C	4D
R7422	B	C	4D
R7423	B	C	4D
R7424	B	C	1C
R7425	B	C	1D
R7426	B	C	1B
R7427	B	C	1B
R7428	B	C	1B
R7429	B	C	1B
R7430	B	C	2B
R7431	B	C	2B
R7432	B	C	3A
R7433	B	C	3A
R7434	B	C	2C
R7435	B	C	1A
R7436	B	C	2D
R7437	B	C	2B
R7438	B	C	1C
R7439	B	C	1C
R7440	B	C	4C
R7441	B	C	4C
R7442	B	C	4E
R7443	B	C	3E
OTHER			
FL7401	A	D	2B

4.18 VSC CIRCUIT BOARD AND WAVEFORMS

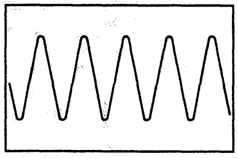


7
2
VSC PWB
A
B2501
C2518
B2502
C2519
C2513
17
16
R2522
C2514
W2512
W2513
UL MARK
C2501
CF2501
C2508
R2508
D2501
PB10995 -02
1
W2514
W2515
32
33
IC2501
64
C2509
W2510
R2509
48
R2510
R2511
49
C2512
C2516
C2511
C2510
R2503
R2502
R2515
C2506
R2504
C2504
R2506
R2507
R2520
Q2502
C2505
L2501
R2505
W2511
R2514
R2516
C2517
C2502
R2501
C2503
C2507
Q2503
R2517
R2521
9
LPF2501
LC2501
V1
R2513
R2512
R2518
R2519
1
CN2501

— WAVEFORMS —

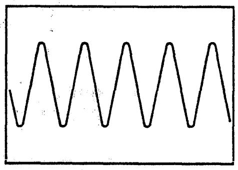
— VSC —

WF1 CN2501-2



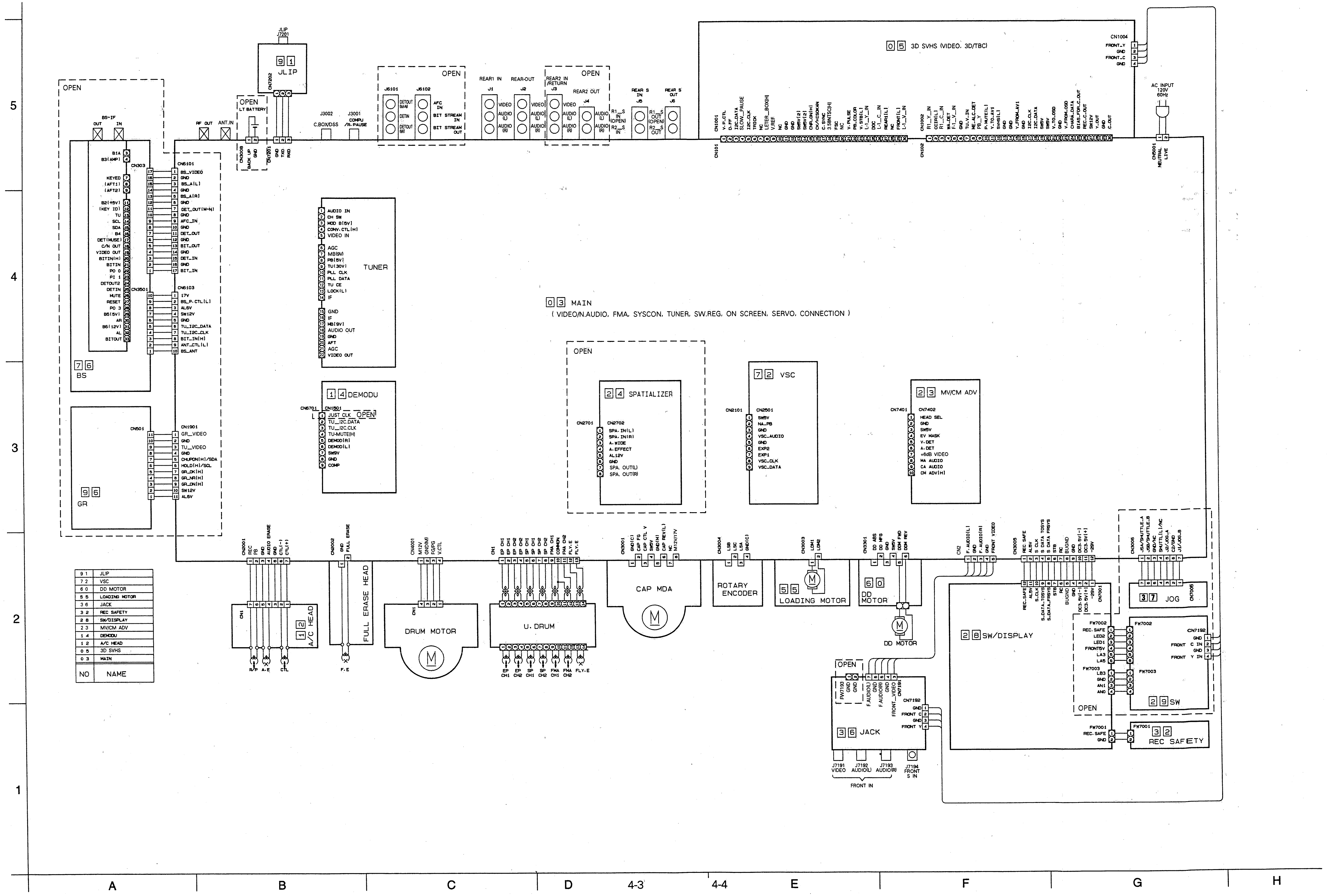
PB 0.5 Vp-p
10 mV/0.5 msec/DIV

WF2 IC2501-48



PB 1.3 Vp-p
50 mV/1 msec/DIV

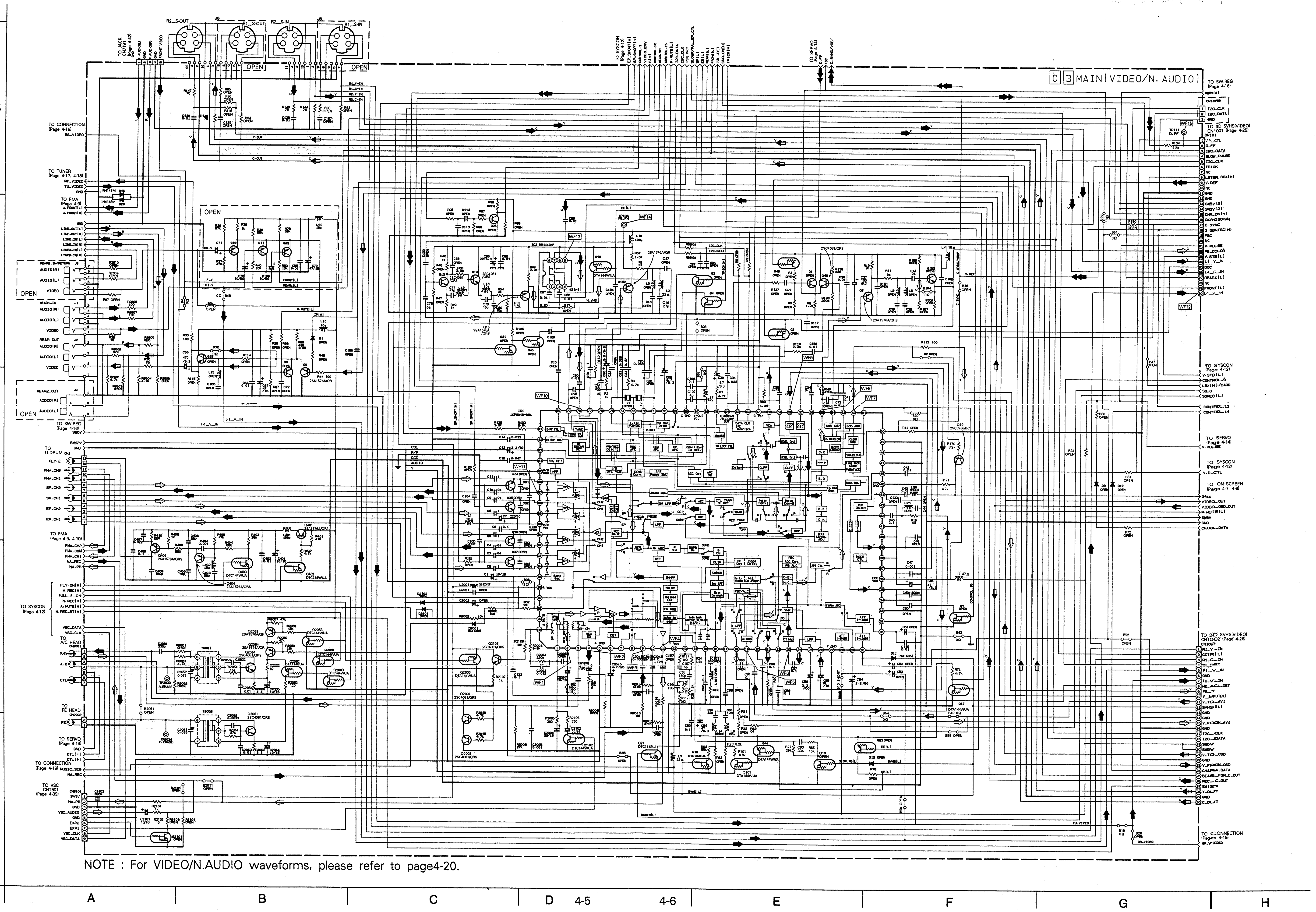
4.1 BOARD INTERCONNECTIONS



0 5 3D SVHS (VIDEO, 3D/TBC)
CN1004
FRONT_Y
GND
FRONT_C
GND
AC INPUT
120V
60Hz
CN5001
NEUTRAL
LIVE
9 1 JLIP
J7201
CN7202
CN7201
OPEN
LT BATTERY
CN7203
BACK UP
GND
TXD
RXD
OPEN
BS-IF
OUT
IN
RF OUT
ANT.IN
J3002
C.BOX/DSS
J3001
COMPU /R.PAUSE
J6101
J6102
DETOUT
DETIN
AFC IN
BIT STREAM IN
BIT STREAM OUT
REAR1 IN
REAR-OUT
J1
J2
VIDEO
AUDIO (L)
AUDIO (R)
REAR2 IN /RETURN
J3
REAR2 OUT
J4
REAR S IN
J5
REAR S OUT
J6
R1_S IN (OPEN)
R2_S IN
R1_S OUT (OPEN)
R2_S OUT
CN1001
CN1002
CN101
CN102
CN303
CN3501
CN6101
CN6103
7 6 BS
CN501
CN1901
9 6 GR
TUNER
1 4 DEMODU
CN6701
CN1501
0 3 MAIN
(VIDEO/N.AUDIO, FMA, SYSCON, TUNER, SW.REG, ON SCREEN, SERVO, CONNECTION)
OPEN
2 4 SPATIALIZER
CN2701
CN2702
7 2 VSC
CN2101
CN2501
2 3 MV/CM ADV
CN7401
CN7402
CN2001
CN2002
CN4001
CN1
CN3001
CN3004
CN3003
CN3301
CN2
CN3005
CN3006
1 2 A/C HEAD
R/P
A-E
CTL
FULL ERASE HEAD
F.E
DRUM MOTOR
U. DRUM
EP CH1
EP CH2
SP CH1
SP CH2
FMA CH1
FMA CH2
FLY-E
CAP MDA
ROTARY ENCODER
5 5 LOADING MOTOR
6 0 DD MOTOR
DD MOTOR
2 8 SW/DISPLAY
CN7001
3 7 JOG
CN7006
FW7002
FW7003
2 9 SW
CN7192
FRONT C IN
FRONT Y IN
OPEN
FW7001
3 2 REC SAFETY
REC. SAFE
GND
3 6 JACK
FW7193
CN7191
J7191 VIDEO
J7192 AUDIO(L)
J7193 AUDIO(R)
J7194 FRONT S IN
FRONT IN
A
B
C
D
E
F
G
H
1
2
3
4
5

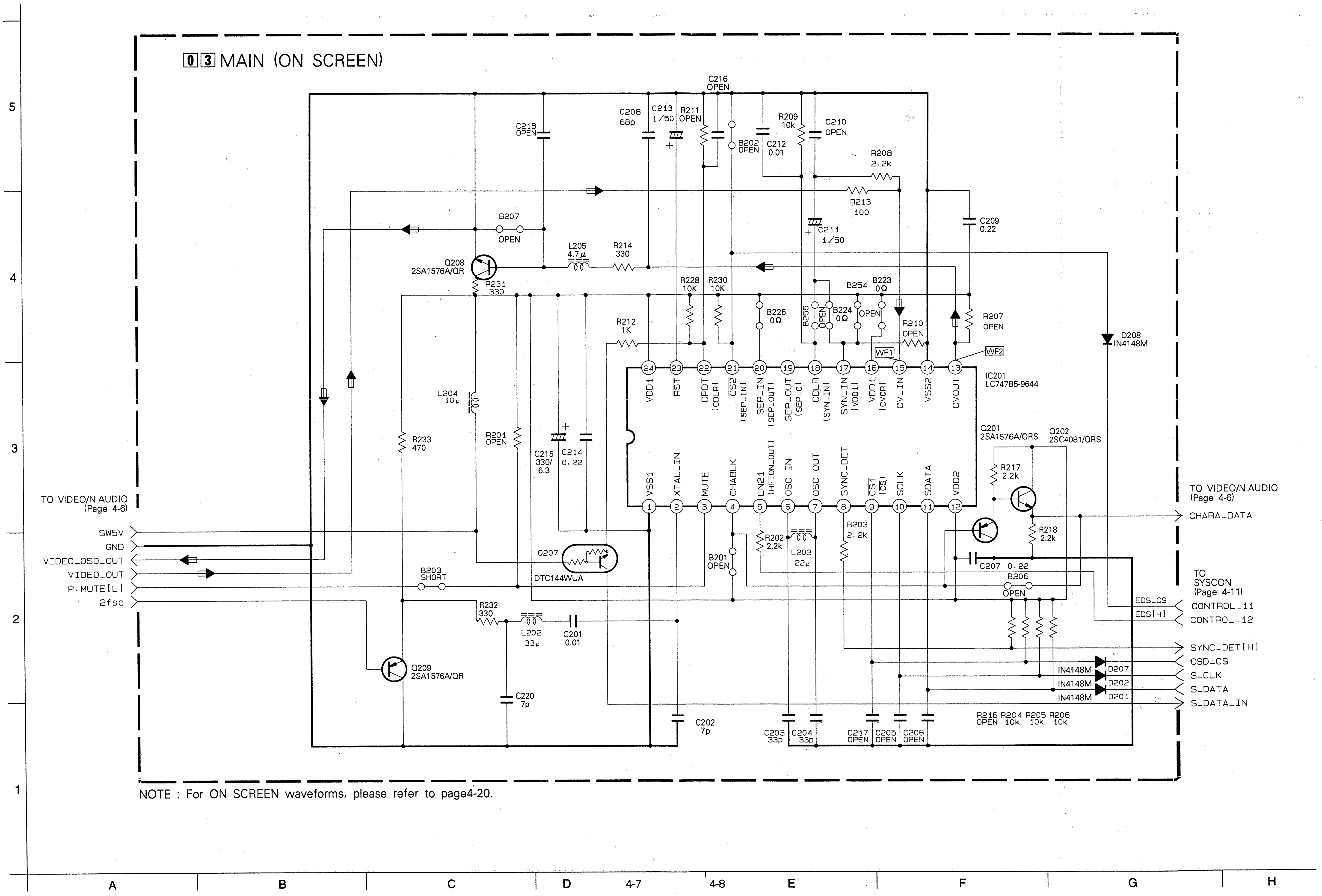
NO	NAME
9 1	JLIP
7 2	VSC
6 0	DD MOTOR
5 5	LOADING MOTOR
3 6	JACK
3 2	REC SAFETY
2 8	SW/DISPLAY
2 3	MV/CM ADV
1 4	DEMODU
1 2	A/C HEAD
0 5	3D SVHS
0 3	MAIN

4.2 VIDEO/N.AUDIO SCHEMATIC DIAGRAM


0 3 MAIN [VIDEO/N. AUDIO]
5
4
3
2
1
A
B
C
D
E
F
G
H

NOTE : For VIDEO/N.AUDIO waveforms, please refer to page4-20.

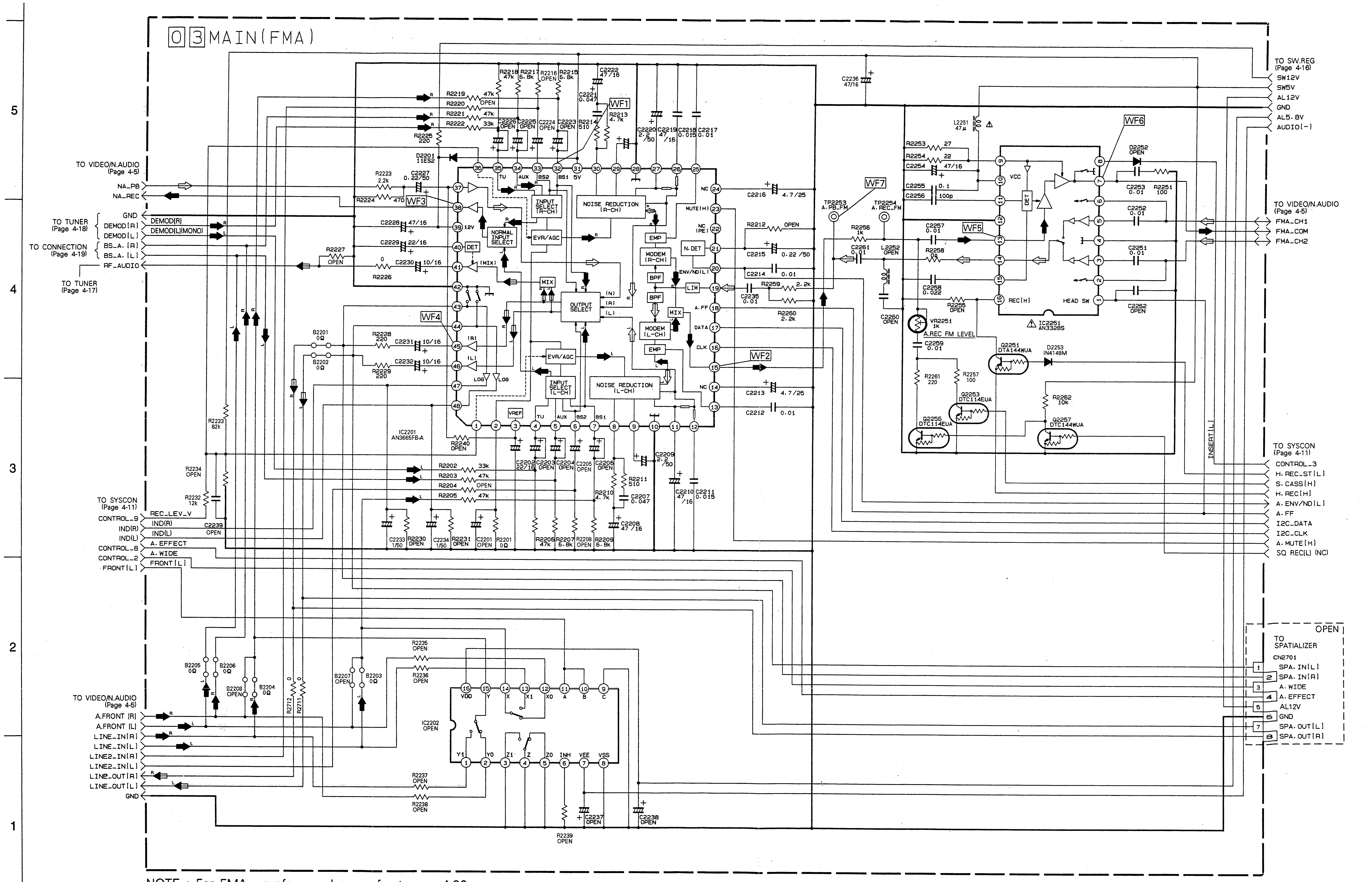
4.3 ON SCREEN SCHEMATIC DIAGRAM



03 MAIN (ON SCREEN)
TO VIDEO/N.AUDIO (Page 4-6)
SW5V
GND
VIDEO_OSD_OUT
VIDEO_OUT
P. MUTE[L]
2fsc
C216 OPEN
C218 OPEN
C208 68p
C213 1/50
R211 OPEN
B202 OPEN
C212 0.01
R209 10k
C210 OPEN
R208 2.2k
R213 100
C211 1/50
C209 0.22
B207 OPEN
Q208 2SA1576A/QR
L205 4.7μ
R214 330
R231 330
R228 10K
R230 10K
B225 0Ω
B255 OPEN
B224 0Ω
B254
B223 0Ω
OPEN
R210 OPEN
R207 OPEN
D208 IN4148M
R212 1K
WF1
WF2
IC201 LC74785-9644
VDD1
RST
CPDT (CDLR)
CS2 (SEP_IN)
SEP_IN (SEP_OUT)
SEP_OUT (SEP_C)
CDLR (SYN_IN)
SYN_IN (VDD1)
VDD1 (CVCR)
CV_IN
VSS2
CVOUT
VSS1
XTAL_IN
MUTE
CHABLK
LN21 (HFTON_OUT)
OSC IN
OSC OUT
SYNC_DET
CS1 (CS)
SCLK
SDATA
VDD2
L204 10μ
R201 OPEN
C215 330/6.3
C214 0.22
R233 470
Q201 2SA1576A/QRS
Q202 2SC4081/QRS
R217 2.2k
R218 2.2k
Q207 DTC144WUA
B203 SHORT
B201 OPEN
R202 2.2k
L203 22μ
R203 2.2k
C207 0.22
B206 OPEN
R232 330
L202 33μ
C201 0.01
Q209 2SA1576A/QR
C220 7p
C202 7p
C203 33p
C204 33p
C217 OPEN
C205 OPEN
C206 OPEN
R216 OPEN
R204 10k
R205 10k
R206 10k
IN4148M D207
IN4148M D202
IN4148M D201
EDS_CS
EDS[H]
TO VIDEO/N.AUDIO (Page 4-6)
CHARA_DATA
TO SYSCON (Page 4-11)
CONTROL_11
CONTROL_12
SYNC_DET[H]
OSD_CS
S_CLK
S_DATA
S_DATA_IN
5
4
3
2
1
A
B
C
D
4-7
4-8
E
F
G
H

NOTE : For ON SCREEN waveforms, please refer to page4-20.

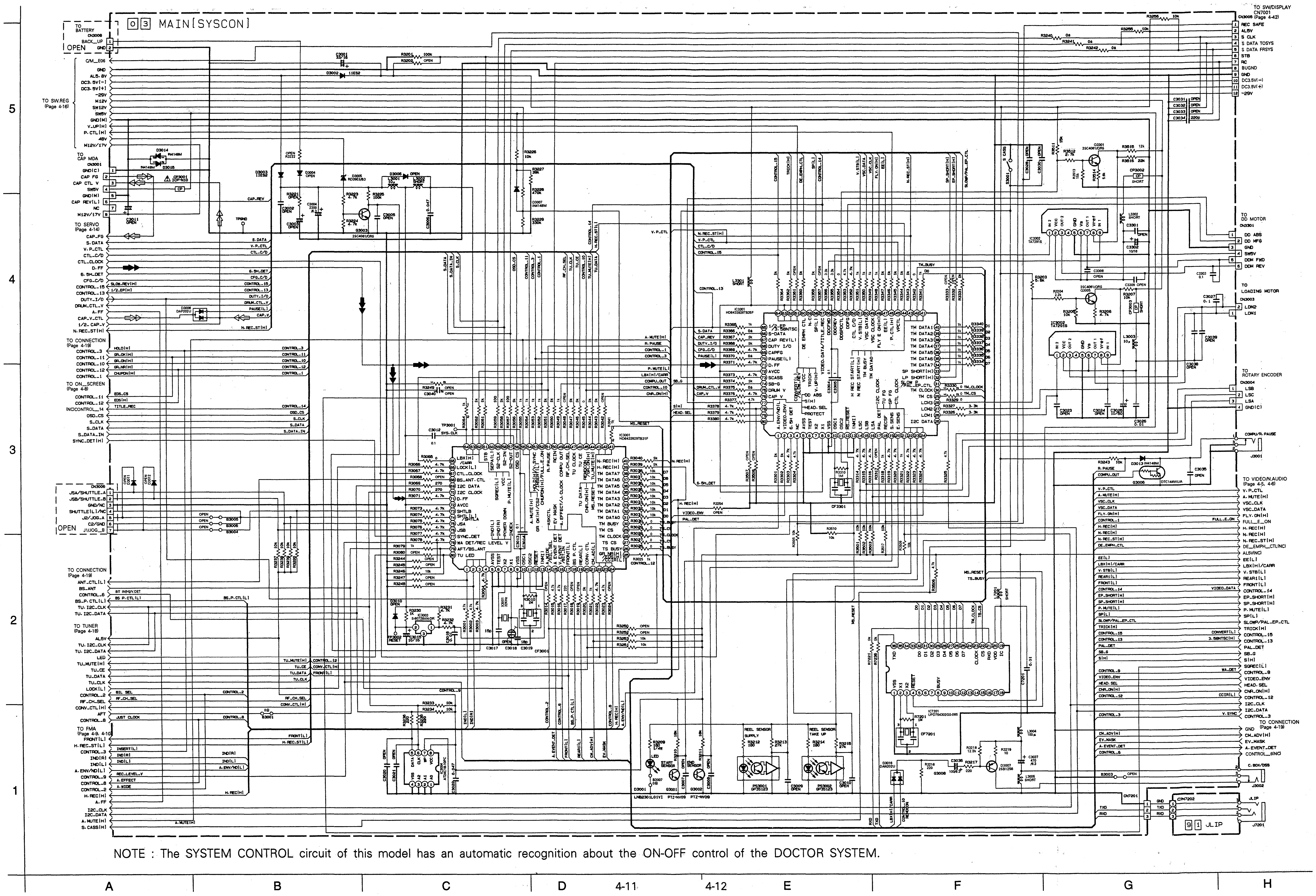
4.4 FMA SCHEMATIC DIAGRAM



03 MAIN (FMA)
5
4
3
2
1
TO SW.REG (Page 4-16)
SW12V
SW5V
AL12V
GND
AL5.8V
AUDIO(-)
TO VIDEO/N.AUDIO (Page 4-5)
NA_PB
NA_REC
TO TUNER (Page 4-18)
GND
DEMOD(R)
DEMOD(L)
DEMOD(L)(MONO)
TO CONNECTION (Page 4-19)
BS_A.(R)
BS_A.(L)
RF_AUDIO
TO TUNER (Page 4-17)
TO SYSCON (Page 4-11)
CONTROL_9
IND(R)
IND(L)
CONTROL_8
CONTROL_2
FRONT(L)
REC_LEV_V
A.EFFECT
A.WIDE
TO VIDEO/N.AUDIO (Page 4-5)
A.FRONT (R)
A.FRONT (L)
LINE_IN(R)
LINE_IN(L)
LINE2_IN(R)
LINE2_IN(L)
LINE_OUT(R)
LINE_OUT(L)
GND
IC2201 AN3665FB-A
INPUT SELECT (R-CH)
NOISE REDUCTION (R-CH)
NORMAL INPUT SELECT
EVR/AGC
DET
MIX
OUTPUT SELECT
EMP
MODEM (R-CH)
N.DET
BPF
LIM
MODEM (L-CH)
INPUT SELECT (L-CH)
NOISE REDUCTION (L-CH)
VREF
TU
AUX
BS2
BS1
5V
12V
LOG
MUTE(H)
NC
ENV/ND(L)
A.FF
DATA
CLK
WF1
WF2
WF3
WF4
WF5
WF6
WF7
TP2253 A.PB_FM
TP2254 A.REC_FM
IC2251 AN3328S
VCC
DET
REC(H)
HEAD SW
VR2251 1k A.REC FM LEVEL
Q2251 DTA144WUA
D2253 1N4148M
Q2253 DTC114EUA
Q2256 DTC114EUA
Q2257 DTC144WUA
D2252 OPEN
L2251 47μ
INSERT(L)
TO VIDEO/N.AUDIO (Page 4-5)
FMA_CH1
FMA_COM
FMA_CH2
TO SYSCON (Page 4-11)
CONTROL_3
H.REC_ST(L)
S.CASS(H)
H.REC(H)
A.ENV/ND(L)
A.FF
I2C_DATA
I2C_CLK
A.MUTE(H)
SQ REC(L) (NC)
OPEN
TO SPATIALIZER
CN2701
1 SPA.IN(L)
2 SPA.IN(R)
3 A.WIDE
4 A.EFFECT
5 AL12V
6 GND
7 SPA.OUT(L)
8 SPA.OUT(R)
IC2202
VDD Y X X1 X0 A B C
Y1 Y0 Z1 Z Z0 INH VEE VSS
R2219 47k
R2220 OPEN
R2221 47k
R2222 33k
R2218 47k
R2217 6.8k
R2216 OPEN
R2215 6.8k
C2222 47/16
C2221 0.047
R2213 4.7k
R2214 510
C2220 2.2/50
C2219 47/16
C2218 0.015
C2217 0.01
C2236 47/16
R2225 220
D2201 11ES2
R2223 2.2k
C2227 0.22/50
R2224 470
C2228 47/16
C2229 22/16
C2230 10/16
R2227 OPEN
R2226 0
B2201 0Ω
B2202 0Ω
R2228 220
R2229 220
C2231 10/16
C2232 10/16
C2216 4.7/25
R2212 OPEN
C2215 0.22/50
C2214 0.01
R2259 2.2k
R2260 2.2k
C2235 0.01
C2213 4.7/25
C2212 0.01
R2240 OPEN
R2202 33k
R2203 47k
R2204 OPEN
R2205 47k
C2202 22/16
C2203 OPEN
C2204 OPEN
C2205 OPEN
C2206 OPEN
C2209 2.2/50
R2211 510
R2210 4.7k
C2207 0.047
C2210 47/16
C2211 0.015
C2208 47/16
R2233 82k
R2234 OPEN
R2232 12k
C2239 OPEN
C2233 1/50
R2230 OPEN
C2234 1/50
R2231 OPEN
C2201 OPEN
R2201 0Ω
R2206 47k
R2207 6.8k
R2208 OPEN
R2209 6.8k
R2253 27
R2254 22
C2254 47/16
C2255 0.1
C2256 100p
R2256 1k
C2261 0.01
L2252 OPEN
C2257 0.01
R2258 0Ω
C2258 0.022
R2255 OPEN
C2260 OPEN
C2259 0.01
R2261 220
R2257 100
R2262 10k
C2253 0.01
R2251 100
C2252 0.01
C2251 0.01
C2262 OPEN
B2205 0Ω
B2206 0Ω
B2208 OPEN
B2204 0Ω
R2712 0
R2711 0
B2207 OPEN
B2203 0Ω
R2235 OPEN
R2236 OPEN
R2237 OPEN
R2238 OPEN
R2239 OPEN
C2237 OPEN
C2238 OPEN

NOTE : For FMA waveforms, please refer to page4-20.

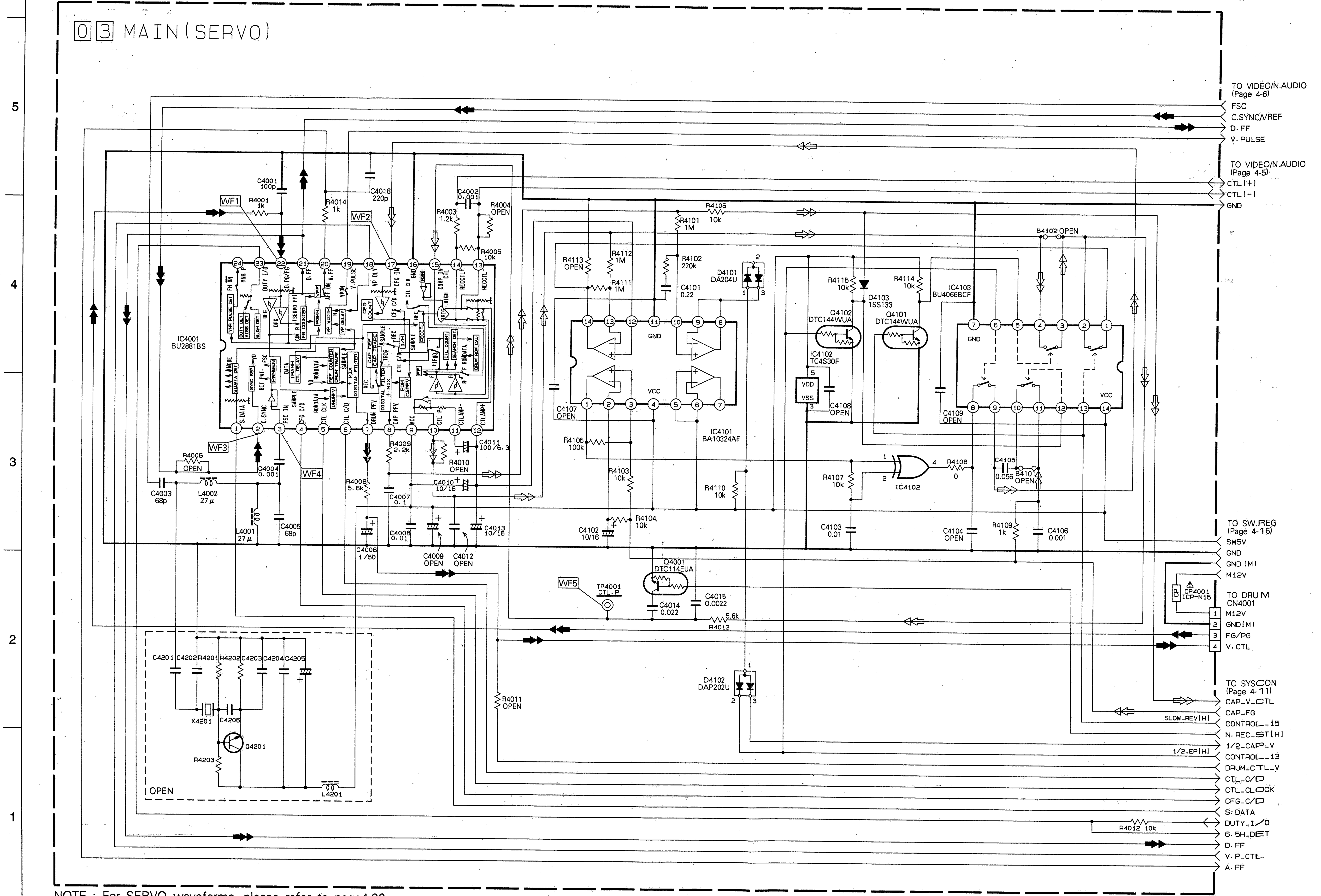
4.5 SYSTEM CONTROL SCHEMATIC DIAGRAM



03 MAIN(SYSCON)
TO BATTERY CN3008 BACK_UP GND OPEN
TO SW.REG (Page 4-16)
C/M_E06
GND
AL5.6V
DC3.5V(-)
DC3.5V(+)
-29V
M12V
SW12V
SW5V
GND(H)
V_UP(H)
P. CTL(H)
48V
M12V/17V
TO CAP MDA CN3001
GND(C)
CAP FG
CAP CTL V
SW5V
GND(H)
CAP REV(L)
NC
M12V/17V
TO SERVO (Page 4-14)
CAP_FG
S.DATA
V.P_CTL
CTL_C/D
CTL_CLOCK
D.FF
6.5H_DET
CFG_C/D
CONTROL_15
CONTROL_13
DUTY_I/O
DRUM_CTL_V
A.FF
CAP_V_CTL
1/2_CAP_V
N.REC_ST(H)
TO CONNECTION (Page 4-19)
CONTROL_3
CONTROL_11
CONTROL_10
CONTROL_12
CONTROL_1
TO ON_SCREEN (Page 4-8)
CONTROL_11
CONTROL_12
(NC)CONTROL_14
OSD_CS
S_CLK
S_DATA
S.DATA_IN
SYNC_DET(H)
CN3006
JSA/SHUTTLE_A
JSB/SHUTTLE_B
GND/NC
SHUTTLE(L)/NC
J2/JOG_A
C2/GND
J1/JOG_B
OPEN
TO CONNECTION (Page 4-19)
ANT_CTL(L)
BS_ANT
CONTROL_6
BS_P_CTL(L)
TU_I2C_CLK
TU_I2C_DATA
TO TUNER (Page 4-18)
AL5V
TU_I2C_CLK
TU_I2C_DATA
LED
TU_MUTE(H)
TU_CE
TU_DATA
TU_CLK
LOCK(L)
CONTROL_2
RF_CH_SEL
CONV_CTL(H)
AFT
CONTROL_8
TO FMA (Page 4-9, 4-10)
FRONT(L)
H.REC_ST(L)
CONTROL_3
IND(R)
IND(L)
A.ENV/ND(L)
CONTROL_9
CONTROL_6
CONTROL_2
H.REC(H)
A.FF
I2C_CLK
I2C_DATA
A.MUTE(H)
S.CASS(H)
IC3001 HD6433929TB35F
IC3201 HD6433926TB35F
IC7201 UPD754302GS-065
IC3302 TA7291S
IC3303 TA7291S
CF3001
CF3301
CF7201
Q3001 2SC4081/QRS
Q3005 2SC4081/QRS
D3001 LNB2301L01VI
Q3001 PTZ-NV09
Q3002 PTZ-NV09
PS3001 GP3S123
PS3002 GP3S123
REEL SENSOR SUPPLY
REEL SENSOR TAKE UP
START SENSOR
END SENSOR
LED
TO SW/DISPLAY CN7001 CN3005 (Page 4-42)
REC SAFE
AL5V
S CLK
S DATA TOSYS
S DATA FRSYS
STB
RC
BUGND
GND
DC3.5V(-)
DC3.5V(+)
-29V
TO DD MOTOR CN3301
DD ABS
DD MFG
GND
SW5V
DDM FWD
DDM REV
TO LOADING MOTOR CN3003
LDM2
LDM1
TO ROTARY ENCODER CN3004
LSB
LSC
LSA
GND(C)
COMPU/R.PAUSE
J3001
TO VIDEO/N.AUDIO (Page 4-5, 4-6)
V.P_CTL
A.MUTE(H)
VSC_CLK
VSC_DATA
FLY_ON(H)
FULL_E_ON
H.REC(H)
N.REC(H)
N.REC_ST(H)
DE_EMPH_CTL(NC)
AL5V(NC)
EE(L)
LBX(H)/CARR
V.STB(L)
REAR(L)
FRONT(L)
CONTROL_14
EP_SHORT(H)
SP_SHORT(H)
P.MUTE(L)
SP(L)
SLOW/PAL_EP_CTL
TRICK(H)
CONTROL_15
CONTROL_13
PAL_DET
SB_G
S(H)
SGREC(L)
CONTROL_9
VIDEO_ENV
HEAD_SEL
CNR_ON(H)
CONTROL_12
I2C_CLK
I2C_DATA
CONTROL_3
TO CONNECTION (Page 4-19)
GND
CN_ADV(H)
EV_MASK
A.EVENT_DET
CONTROL_6(NC)
C.BOX/DSS
J3002
JLIP
CN7202
GND
TXD
RXD
CN7201
91 JLIP
J7201
A B C D E F G H
1 2 3 4 5

NOTE : The SYSTEM CONTROL circuit of this model has an automatic recognition about the ON-OFF control of the DOCTOR SYSTEM.

4.6 SERVO SCHEMATIC DIAGRAM

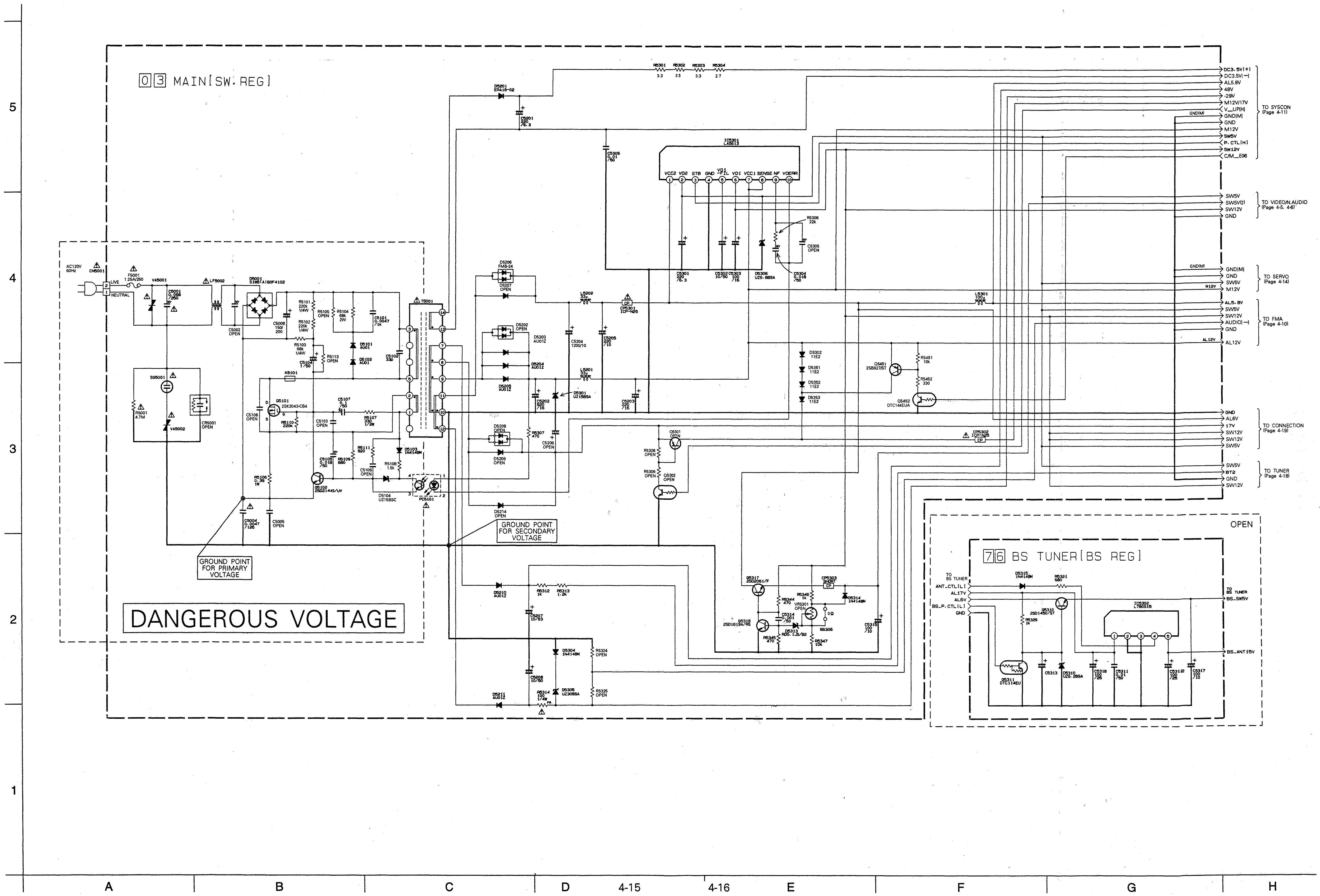


03 MAIN(SERVO)
5
4
3
2
1
TO VIDEO/N.AUDIO (Page 4-6)
FSC
C.SYNC/VREF
D.FF
V.PULSE
TO VIDEO/N.AUDIO (Page 4-5)
CTL(+)
CTL(-)
GND
TO SW.REG (Page 4-16)
SW5V
GND
GND(M)
M12V
TO DRUM CN4001
CP4001 ICP-N15
M12V
GND(M)
FG/PG
V.CTL
TO SYSCON (Page 4-11)
CAP_V_CTL
CAP_FG
CONTROL_15
N.REC_ST(H)
1/2_CAP_V
CONTROL_13
DRUM_CTL_V
CTL_C/D
CTL_CLOCK
CFG_C/D
S.DATA
DUTY_I/O
6.5H_DET
D.FF
V.P_CTL
A.FF
SLOW_REV(H)
1/2_EP(H)
R4012 10k
IC4001 BU2881BS
WF1
WF2
WF3
WF4
WF5
C4001 100p
R4001 1k
R4014 1k
C4016 220p
C4002 0.001
R4003 1.2k
R4004 OPEN
R4005 10k
R4006 OPEN
C4003 68p
C4004 0.001
L4002 27μ
L4001 27μ
C4005 68p
R4008 5.6k
C4006 1/50
R4009 2.2k
C4007 0.1
C4008 0.01
C4009 OPEN
C4010 10/16
C4011 100/6.3
C4012 OPEN
C4013 10/16
R4010 OPEN
R4011 OPEN
R4106 10k
R4101 1M
R4102 220k
C4101 0.22
R4113 OPEN
R4112 1M
R4111 1M
D4101 DA204U
IC4101 BA10324AF
GND
VCC
C4107 OPEN
R4105 100k
R4103 10k
R4104 10k
C4102 10/16
R4110 10k
R4115 10k
D4103 1SS133
R4114 10k
Q4102 DTC144WUA
Q4101 DTC144WUA
IC4102 TC4S30F
VDD
VSS
C4108 OPEN
IC4103 BU4066BCF
B4102 OPEN
C4109 OPEN
R4107 10k
IC4102
R4108 0
C4105 0.056
B4101 OPEN
C4103 0.01
C4104 OPEN
R4109 1k
C4106 0.001
Q4001 DTC114EUA
TP4001 CTL.P
C4014 0.022
C4015 0.0022
R4013 5.6k
D4102 DAP202U
C4201
C4202
R4201
R4202
C4203
C4204
C4205
X4201
C4206
Q4201
R4203
L4201
OPEN

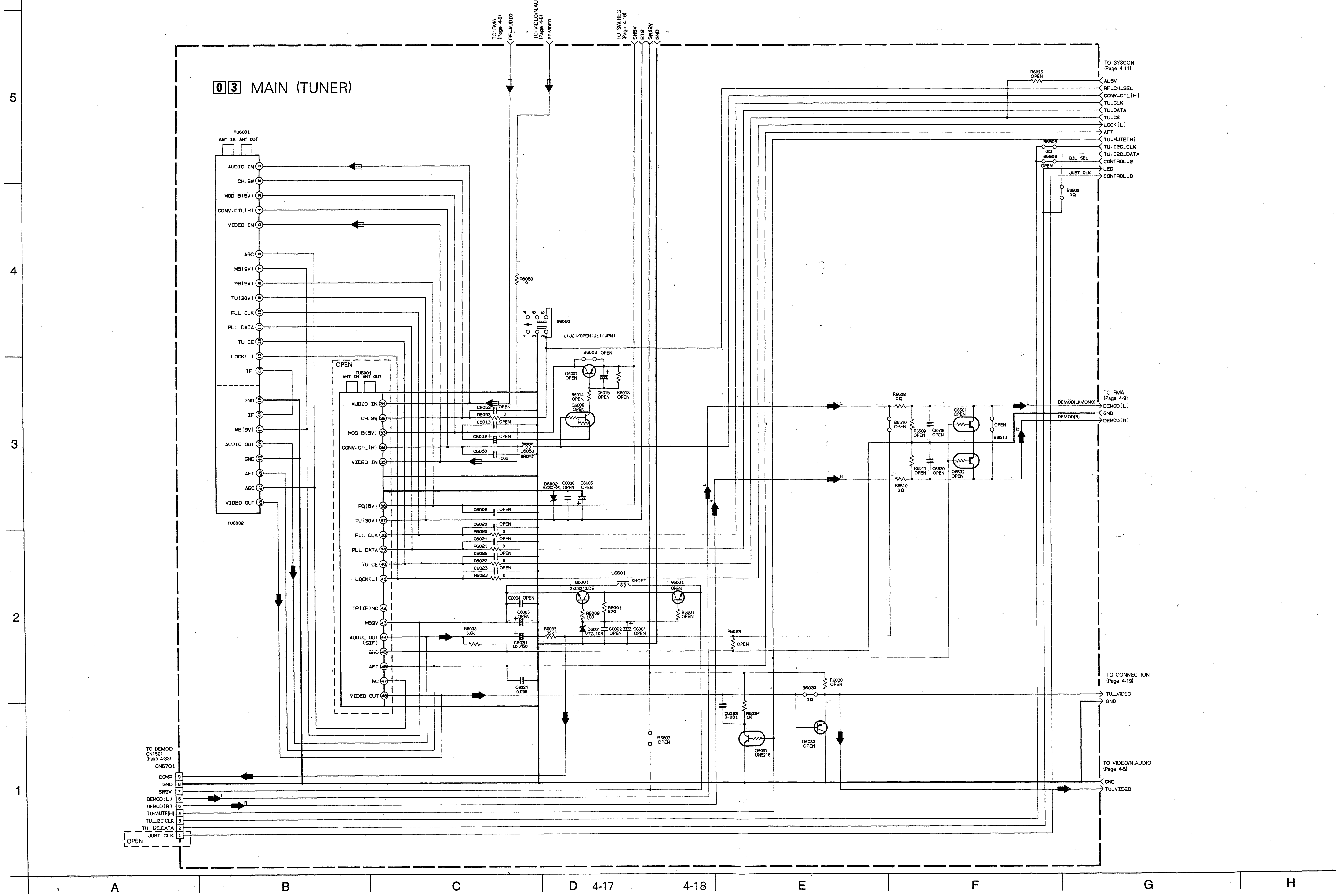
NOTE : For SERVO waveforms, please refer to page4-20.

A
B
C
D
E
F
G
H

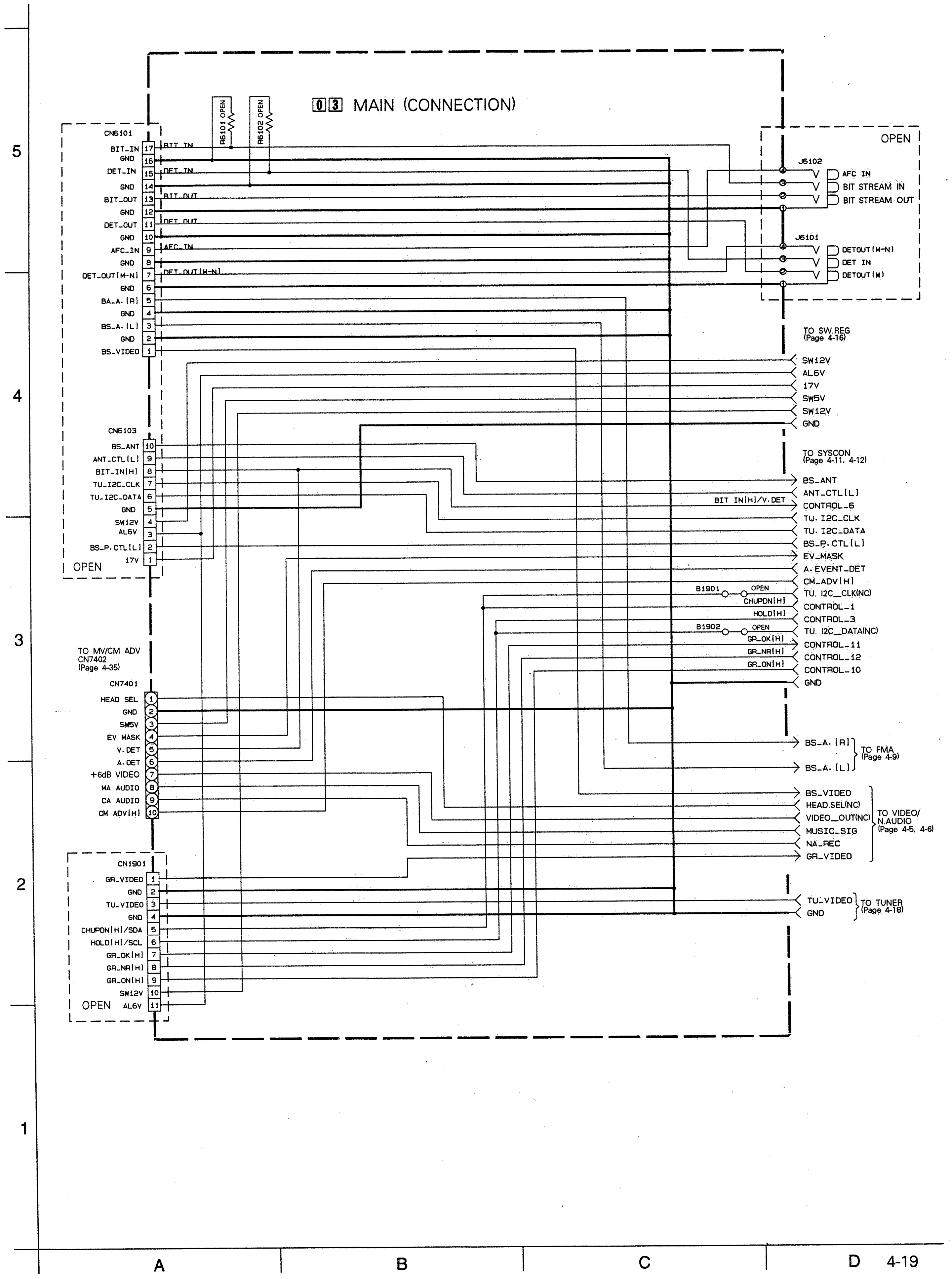
4.7 SWITCHING REGULATOR SCHEMATIC DIAGRAM


03 MAIN[SW. REG]
AC120V 60Hz
CN5001
LIVE
NEUTRAL
F5001 1.25A/250
VA5001
C5001 0.068 /250
LF5002
C5002 OPEN
D5001 S1WB(A)60F4102
C5006 150/ 200
R5101 220k 1/4W
R5102 220k 1/4W
R5103 68k 1/4W
R5105 OPEN
R5104 68k 2W
C5101 0.0047 /1k
D5101 AU01
D5102 AU01
R5113 OPEN
C5104 1/50
C5102 33p
K5101
T5001
SG5001
R5001 4.7M
VA5002
CR5001 OPEN
Q5101 2SK2043-CB4
D
G
S
C5108 OPEN
R5110 220k
C5103 OPEN
C5107 0.1 /50
R5107 330 1/2W
C5105 0.018 /50
R5109 680
R5111 820
C5106 OPEN
R5108 1.5k
D5103 1N4148M
R5106 0.39 1W
Q5102 2SD2144S/UV
D5104 UZ15BSC
PC5101
C5004 0.0047 /125
C5005 OPEN
GROUND POINT FOR PRIMARY VOLTAGE
DANGEROUS VOLTAGE
D5201 ERA18-02
C5201 220 /6.3
R5301 3.3
R5302 33
R5303 3.3
R5304 2.7
C5306 0.01 /50
IC5301 LA5613
VCC2 VO2 STB GND VO1 -FIL VO1 VCC1 SENSE NF VOERR
R5306 22k
C5305 OPEN
C5301 220 /6.3
C5302 10/50
C5303 100 /16
D5306 UZ6.8BSA
C5304 0.018 /50
D5206 FMB-24
D5207 OPEN
D5202 OPEN
D5203 AU01Z
D5204 AU01Z
D5205 AU01Z
L5202 33μ
CP5301 ICP-N25
C5204 1200/10
C5205 220 /10
L5201 33μ
D5301 UZ15BSA
C5202 820 /16
C5203 220 /16
D5208 OPEN
D5209 OPEN
R5307 470
C5206 OPEN
D5214 OPEN
GROUND POINT FOR SECONDARY VOLTAGE
Q5301 OPEN
R5308 OPEN
R5309 OPEN
Q5302 OPEN
L5301 100μ
D5302 11E2
D5351 11E2
D5352 11E2
D5353 11E2
Q5451 2SB927/ST
R5451 10k
R5452 330
Q5452 DTC144EUA
CP5302 ICP-N25
D5210 AU01Z
R5312 1k
R5313 1.2k
C5207 10/63
D5304 1N4148M
R5324 OPEN
C5208 10/50
D5305 UZ30BSA
R5325 OPEN
D5211 AU01Z
R5314 100 1/4W FR
Q5317 2SD2061/F
CP5303 SHORT
R5344 470
R5346 1k
VR5301 OPEN
D5314 1N4148M
0Ω
Q5318 2SD1819A/RS
C5314 0.001 /50
D5313 RD5.1JS/B2
B5306
R5345 470
R5347 10k
C5315 100 /10
GND(M)
M12V
AL12V
DC3.5V[+]
DC3.5V[−]
AL5.8V
48V
-29V
M12V/17V
V_UP[H]
GND[M]
GND
M12V
SW5V
P.CTL[H]
SW12V
C/M_E06
TO SYSCON (Page 4-11)
SW5V
SW5V(2)
SW12V
GND
TO VIDEO/N.AUDIO (Page 4-5, 4-6)
GND[M]
GND
SW5V
M12V
TO SERVO (Page 4-14)
AL5.8V
SW5V
SW12V
AUDIO[−]
GND
AL12V
TO FMA (Page 4-10)
GND
AL6V
17V
SW12V
SW12V
SW5V
TO CONNECTION (Page 4-19)
SW5V
BT2
GND
SW12V
TO TUNER (Page 4-18)
OPEN
76 BS TUNER[BS REG]
TO BS TUNER
ANT_CTL[L]
AL17V
AL6V
BS_P.CTL[L]
GND
D5315 1N4148M
R5321 680
Q5310 2SD1450/ST
R5329 1k
IC5302 L78OS15
TO BS TUNER
BS_SW5V
BS_ANT15V
Q5311 DTC114EU
C5313
D5310 UZ6.2BSA
C5318 100 /25
C5311 0.01 /50
C5312 100 /25
C5317 100 /10
5
4
3
2
1
A
B
C
D
E
F
G
H

4.8 TUNER SCHEMATIC DIAGRAM


03 MAIN (TUNER)
TO FMA
(Page 4-9)
RF_AUDIO
TO VIDEO/N.AUDIO
(Page 4-5)
RF VIDEO
TO SW.REG
(Page 4-16)
SW5V
BT2
SW12V
GND
TU6001
ANT IN ANT OUT
AUDIO IN 1
CH. SW 2
MOD B(5V) 3
CONV. CTL(H) 4
VIDEO IN 5
AGC 6
MB(9V) 7
PB(5V) 8
TU(30V) 9
PLL CLK 10
PLL DATA 11
TU CE 12
LOCK(L) 13
IF 14
GND 15
IF 16
MB(9V) 17
AUDIO OUT 18
GND 19
AFT 20
AGC 21
VIDEO OUT 22
TU6002
OPEN
TU6001
ANT IN ANT OUT
AUDIO IN 31
CH. SW 32
MOD B(5V) 33
CONV. CTL(H) 34
VIDEO IN 35
PB(5V) 36
TU(30V) 37
PLL CLK 38
PLL DATA 39
TU CE 40
LOCK(L) 41
TP(IF)NC 42
MB9V 43
AUDIO OUT (SIF) 44
GND 45
AFT 46
NC 47
VIDEO OUT 48
R6050 0
S6050
L(J2)/OPEN(J1)(JPN)
B6003 OPEN
Q6007 OPEN
R6014 OPEN
C6015 OPEN
R6013 OPEN
Q6008 OPEN
C6053 OPEN
R6053 0
C6013 OPEN
C6012 OPEN
C6050 100p
L6050 SHORT
D6002 HZ30-2L
C6006 OPEN
C6005 OPEN
C6008 OPEN
C6020 OPEN
R6020 0
C6021 OPEN
R6021 0
C6022 OPEN
R6022 0
C6023 OPEN
R6023 0
L6601 SHORT
Q6001 2SC3243/DE
Q6601 OPEN
C6004 OPEN
C6003 OPEN
R6002 100
R6001 270
R6601 OPEN
R6038 5.6k
C6031 10 /50
R6032 39k
D6001 MTZJ10B
C6002 OPEN
C6001 OPEN
C6024 0.056
B6607 OPEN
R6033 OPEN
C6033 0.001
R6034 1M
Q6031 UN5216
B6030 0Ω
R6030 OPEN
Q6030 OPEN
TO SYSCON
(Page 4-11)
R6025 OPEN
AL5V
RF_CH_SEL
CONV_CTL(H)
TU_CLK
TU_DATA
TU_CE
LOCK(L)
AFT
TU_MUTE(H)
B6505 0Ω
TU. I2C_CLK
TU. I2C_DATA
B6606 OPEN
BIL SEL
CONTROL_2
LED
JUST CLK
CONTROL_8
B6506 0Ω
R6508 0Ω
B6510 OPEN
R6509 OPEN
C6519 OPEN
Q6501 OPEN
OPEN
B6511
R6511 OPEN
C6520 OPEN
Q6502 OPEN
R6510 0Ω
L
R
TO FMA
(Page 4-9)
DEMOD(L)(MONO)
DEMOD(L)
GND
DEMOD(R)
DEMOD(R)
TO CONNECTION
(Page 4-19)
TU_VIDEO
GND
TO VIDEO/N.AUDIO
(Page 4-5)
GND
TU_VIDEO
TO DEMOD
CN1501
(Page 4-33)
CN6701
COMP 9
GND 8
SW9V 7
DEMOD(L) 6
DEMOD(R) 5
TU-MUTE(H) 4
TU_I2C.CLK 3
TU_I2C.DATA 2
JUST CLK 1
OPEN
5
4
3
2
1
A
B
C
D
E
F
G
H

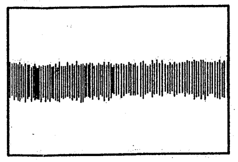
4.9 CONNECTION SCHEMATIC DIAGRAM


03 MAIN (CONNECTION)
R6101 OPEN
R6102 OPEN
CN6101
BIT_IN 17
GND 16
DET_IN 15
GND 14
BIT_OUT 13
GND 12
DET_OUT 11
GND 10
AFC_IN 9
GND 8
DET_OUT(M-N) 7
GND 6
BA_A.(R) 5
GND 4
BS_A.(L) 3
GND 2
BS_VIDEO 1
OPEN
J6102
AFC IN
BIT STREAM IN
BIT STREAM OUT
J6101
DETOUT(M-N)
DET IN
DETOUT(M)
TO SW.REG (Page 4-16)
SW12V
AL6V
17V
SW5V
SW12V
GND
CN6103
BS_ANT 10
ANT_CTL(L) 9
BIT_IN(H) 8
TU_I2C_CLK 7
TU_I2C_DATA 6
GND 5
SW12V 4
AL6V 3
BS_P.CTL(L) 2
17V 1
OPEN
TO SYSCON (Page 4-11, 4-12)
BIT IN(H)/V.DET
BS_ANT
ANT_CTL(L)
CONTROL_6
TU. I2C_CLK
TU. I2C_DATA
BS_P. CTL(L)
EV_MASK
A. EVENT_DET
CM_ADV(H)
B1901 OPEN
TU. I2C_CLK(NC)
CHUPDN(H)
CONTROL_1
HOLD(H)
CONTROL_3
B1902 OPEN
TU. I2C_DATA(NC)
GR_OK(H)
CONTROL_11
GR_NR(H)
CONTROL_12
GR_ON(H)
CONTROL_10
GND
TO MV/CM ADV CN7402 (Page 4-35)
CN7401
HEAD SEL 1
GND 2
SW5V 3
EV MASK 4
V. DET 5
A. DET 6
+6dB VIDEO 7
MA AUDIO 8
CA AUDIO 9
CM ADV(H) 10
BS_A. (R)
BS_A. (L)
TO FMA (Page 4-9)
BS_VIDEO
HEAD SEL(NC)
VIDEO_OUT(NC)
MUSIC_SIG
NA_REC
GR_VIDEO
TO VIDEO/ N.AUDIO (Page 4-5, 4-6)
CN1901
GR_VIDEO 1
GND 2
TU_VIDEO 3
GND 4
CHUPDN(H)/SDA 5
HOLD(H)/SCL 6
GR_OK(H) 7
GR_NR(H) 8
GR_ON(H) 9
SW12V 10
AL6V 11
OPEN
TU_VIDEO
GND
TO TUNER (Page 4-18)
5
4
3
2
1
A
B
C
D

WAVEFORMS

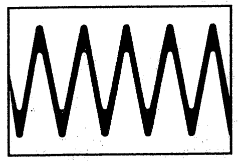
— VIDEO/N.AUDIO —

WF1 IC1-2



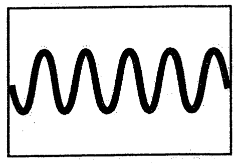
PB 8 mVp-p
2 mV/5 msec/DIV

WF2 IC1-4



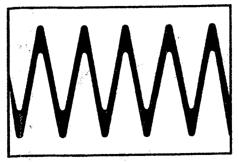
REC 0.84 Vp-p
20 mV/0.5 msec/DIV

WF3 IC1-9



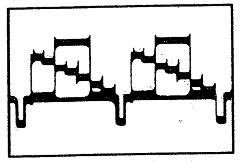
REC 0.12 Vp-p
5 mV/1 msec/DIV

WF4 IC1-11



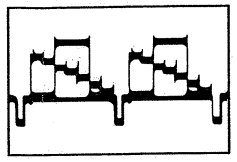
PB 0.68 Vp-p
20 mV/0.5 msec/DIV

WF5-1 IC1-19



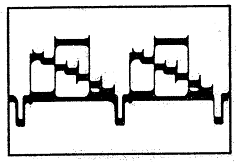
REC 0.52 Vp-p
20 mV/20 μsec/DIV

WF5-2 IC1-19



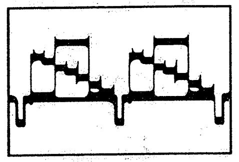
PB 0.56 Vp-p
20 mV/20 μsec/DIV

WF6-1 IC1-23



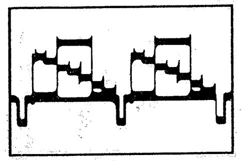
REC 0.54 Vp-p
20 mV/20 μsec/DIV

WF6-2 IC1-23



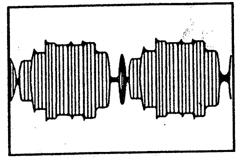
PB 0.56 Vp-p
20 mV/20 μsec/DIV

WF7 IC1-52



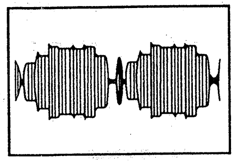
PB 2.2 Vp-p
0.1 V/20 μsec/DIV

WF8 IC1-55



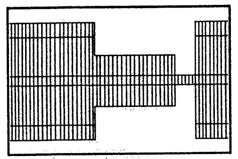
PB 0.62 Vp-p
20 mV/20 μsec/DIV

WF9-1 IC1-58



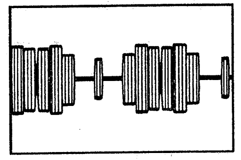
REC 0.48 Vp-p
10 mV/10 μsec/DIV

WF9-2 IC1-58



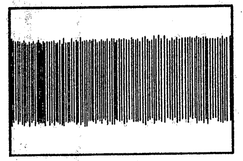
PB 0.45 Vp-p
10 mV/2 msec/DIV

WF10-1 IC1-78



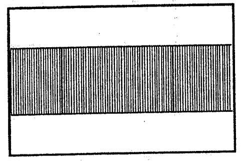
REC 0.68 Vp-p
20 mV/10 μsec/DIV

WF10-2 IC1-78



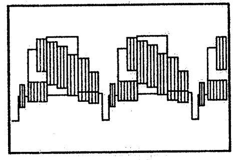
PB 0.38 Vp-p
20 mV/20 μsec/DIV

WF11 IC1-87



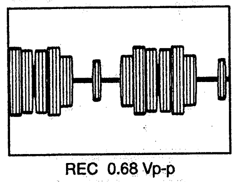
REC 1.4 Vp-p
50 mV/1 msec/DIV

WF12 CN101-30



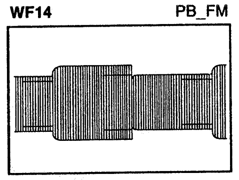
REC 1.0 Vp-p
50 mV/20 μsec/DIV

WF13 IC2-5



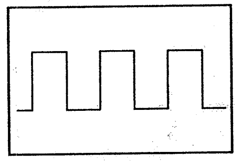
REC 0.68 Vp-p
20 mV/10 μsec/DIV

WF14 TP106 PB_FM



PB 0.44 Vp-p
20 mV/20 μsec/DIV

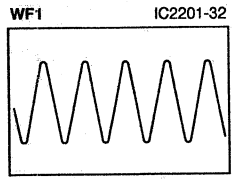
WF15 TP111 D.FF



REC/PB 5.1 Vp-p
0.2 V/10 msec/DIV

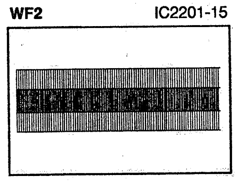
— FMA —

WF1 IC2201-32



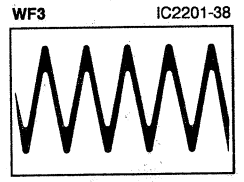
REC 0.1 Vp-p
2 mV/0.5 msec/DIV

WF2 IC2201-15



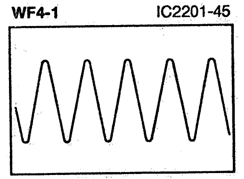
REC 0.27 Vp-p
10 mV/1 msec/DIV

WF3 IC2201-38



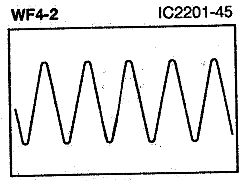
REC 0.12 Vp-p
2 mV/0.5 msec/DIV

WF4-1 IC2201-45



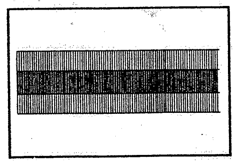
REC 1.1 Vp-p
20 mV/0.5 msec/DIV

WF4-2 IC2201-45



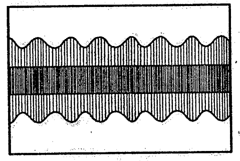
PB 0.8 Vp-p
20 mV/0.5 msec/DIV

WF5 IC2251-13



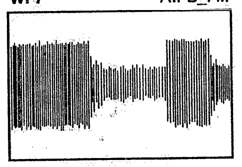
REC 0.25 Vp-p
10 mV/1 msec/DIV

WF6 IC2251-7



REC 2.2 Vp-p
50 mV/2 msec/DIV

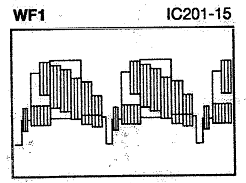
WF7 TP2253 A.PB_FM



PB 0.4 Vp-p
20 mV/5 msec/DIV

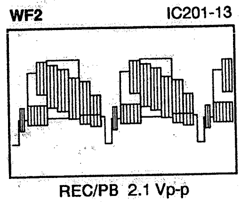
— ON SCREEN —

WF1 IC201-15



REC/PB 2.1 Vp-p
0.1 V/20 μsec/DIV

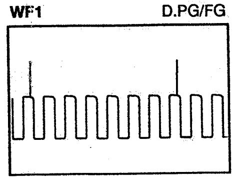
WF2 IC201-13



REC/PB 2.1 Vp-p
0.1 V/20 μsec/DIV

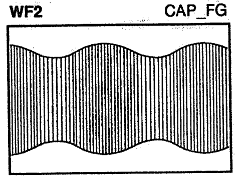
— SERVO —

WF1 IC4001-22 D.PG/FG



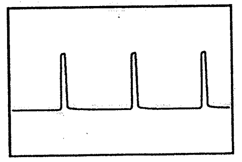
REC/PB 4.0 Vp-p
0.1 V/5 msec/DIV

WF2 IC4001-17 CAP_FG



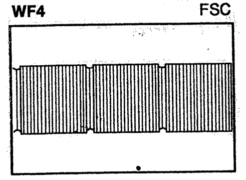
REC/PB 1.8 Vp-p
50 mV/10 msec/DIV

WF3 IC4001-2 C.SYNC



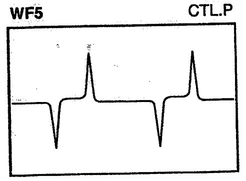
REC 0.5 Vp-p
0.2 V/20 μsec/DIV

WF4 IC4001-3 FSC



REC/PB 0.5 Vp-p
20 mV/5 msec/DIV

WF5 TP4001 CTL.P

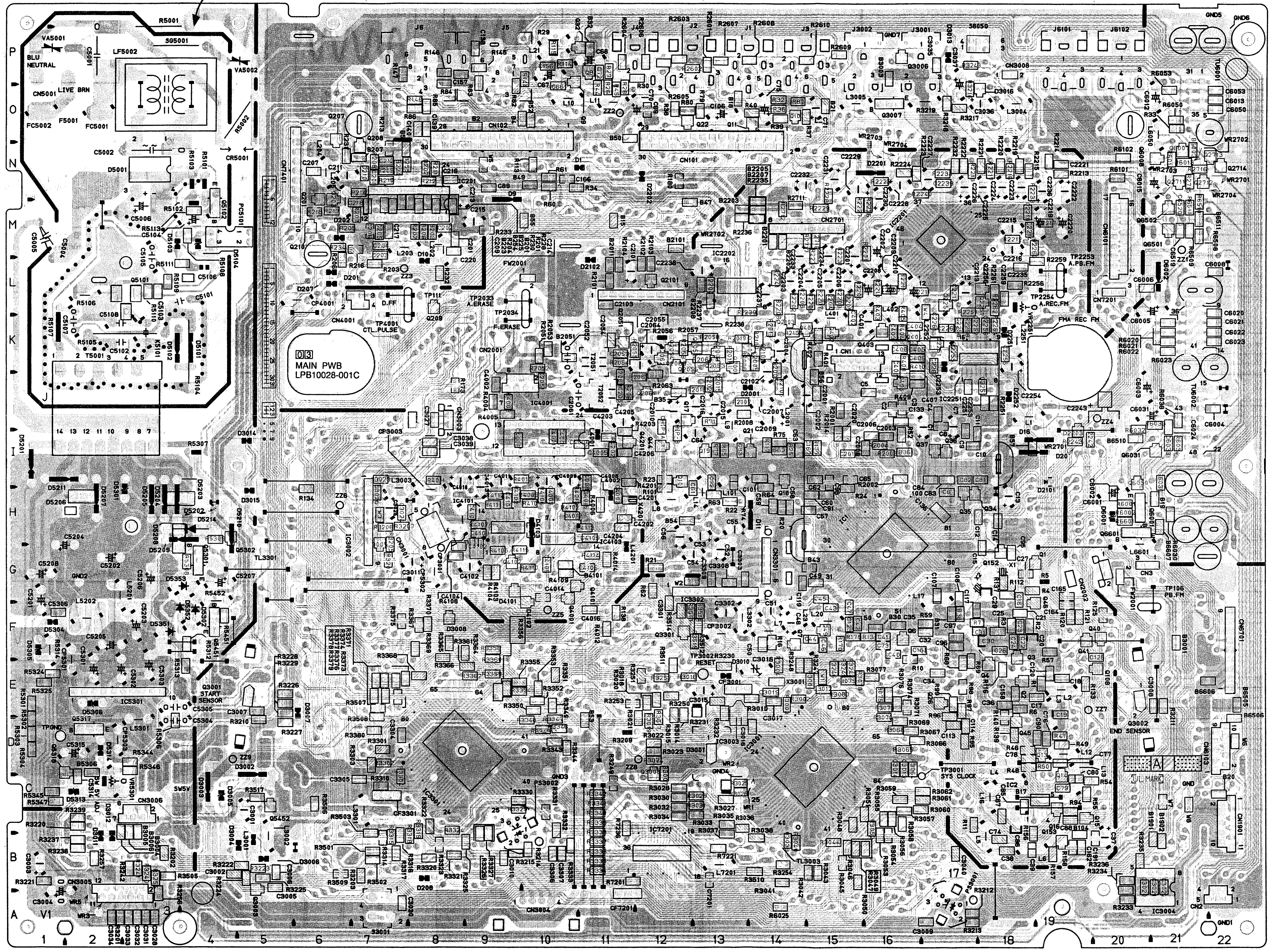


PB 3.0 Vp-p
0.1 V/10 msec/DIV

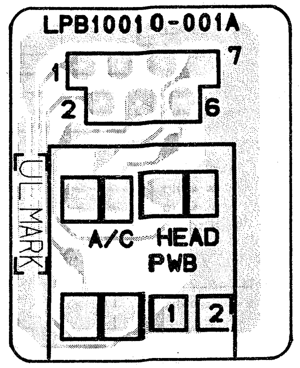
4.10 MAIN AND A/C HEAD CIRCUIT BOARDS

⚠ CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE AND RATED FUSE(S).

DANGEROUS VOLTAGE


03
MAIN PWB
LPB10028-001C
P
O
N
M
L
K
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

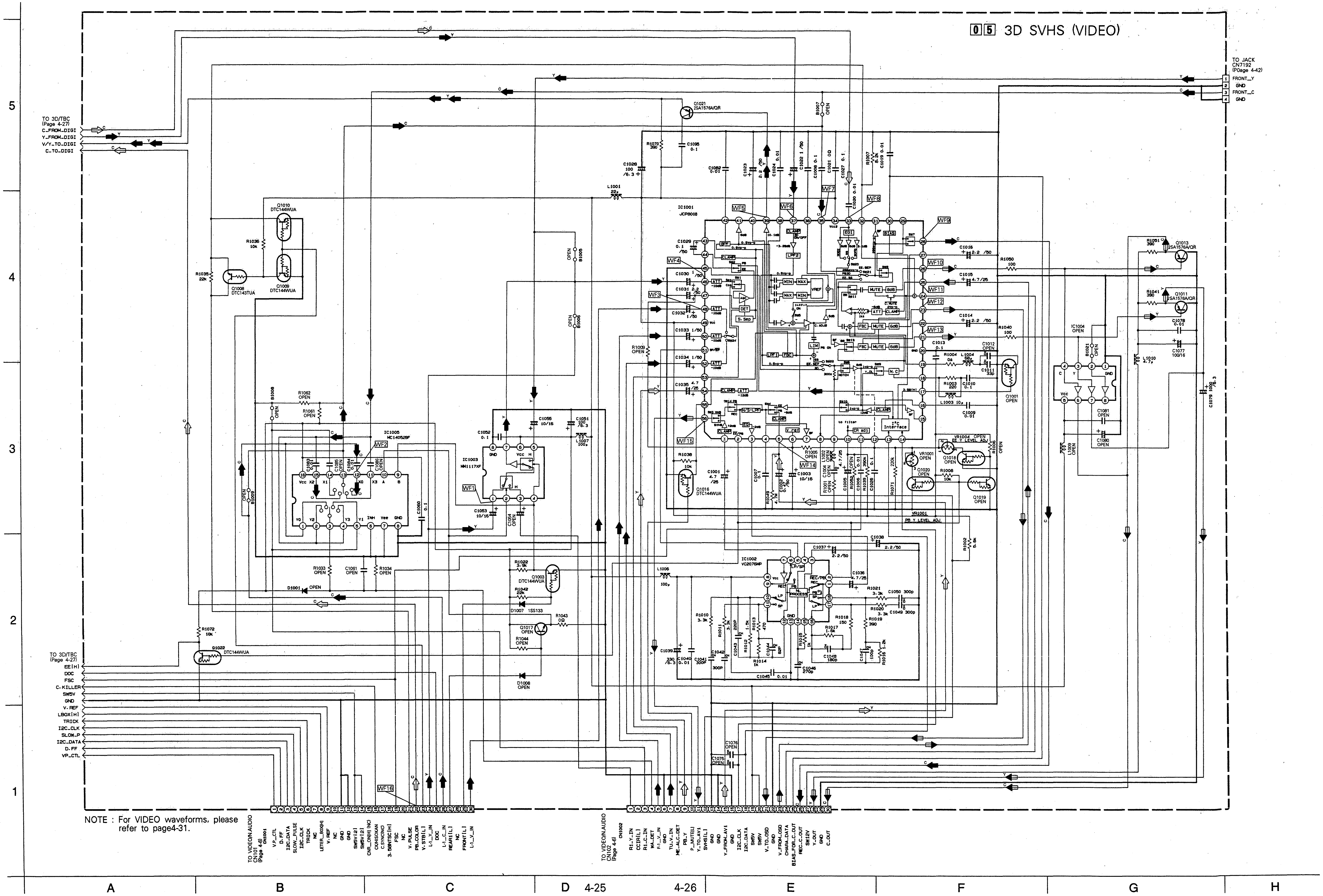
— A/C HEAD —


LPB10010-001A
1
2
6
7
UL MARK
A/C HEAD
PWB
1
2

COMPONENT PARTS LOCATION GUIDE <MAIN>

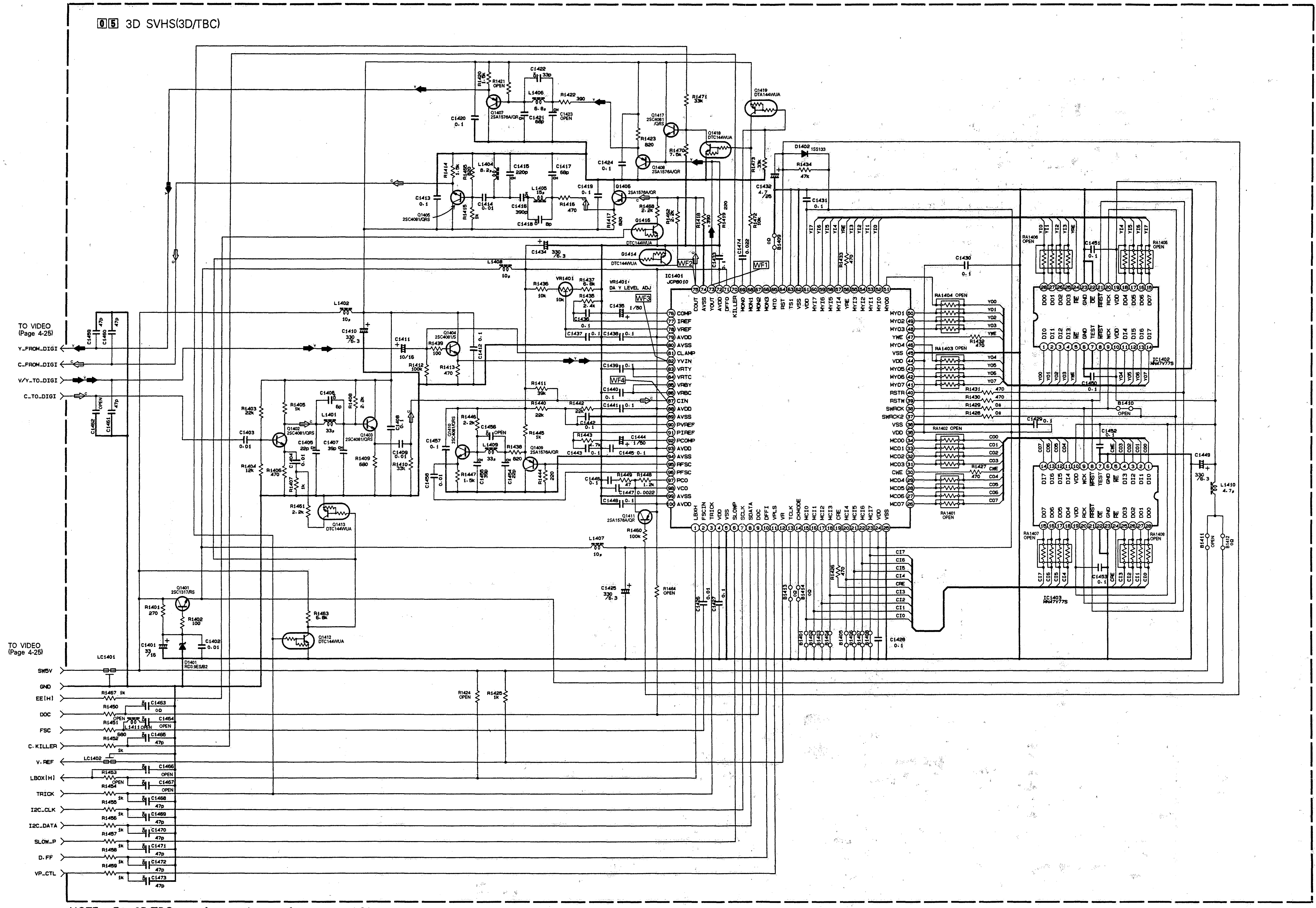
REF.NO.	LOCATION		
CAPACITOR			
C1	A	D	17I
C2	B	C	16J
C3	B	C	16J
C4	B	C	17J
C5	B	C	16J
C6	B	C	17H
C7	A	D	17I
C8	B	C	17J
C9	B	C	17I
C10	B	C	17I
C11	B	C	17I
C12	B	C	18H
C13	A	D	18H
C14	B	C	18H
C15	B	C	18G
C16	B	C	18G
C17	B	C	19E
C18	B	C	19E
C19	B	C	19E
C20	B	C	18F
C21	B	C	18F
C22	B	C	18F
C23	B	C	18F
C24	B	C	18F
C25	B	C	18F
C26	B	C	18F
C27	B	C	18G
C29	B	C	18G
C30	B	C	18F
C31	B	C	18F
C32	B	C	17F
C34	B	C	17E
C35	B	C	16F
C36	B	C	18E
C37	A	D	20C
C38	B	C	18B
C39	B	C	18B
C40	B	C	16F
C41	B	C	16F
C42	B	C	15F
C43	B	C	15F
C44	B	C	15F
C45	B	C	15G
C46	B	C	15F
C47	B	C	15F
C48	A	D	14F
C49	B	C	15G
C50	B	C	14F
C51	A	D	14F
C52	A	D	13G
C53	A	D	13H
C54	A	D	13G
C55	A	D	13H
C56	A	D	12H
C57	B	C	15H
C58	B	C	14H
C59	B	C	14H
C60	B	C	15H
C61	B	C	13H
C62	B	C	15I
C63	B	C	14I
C64	A	D	13I
C65	B	C	15I
C66	B	C	10O
C67	A	D	10P
C68	A	D	11P
C69	B	C	12O
C70	A	D	12O
C71	A	D	15O
C72	B	C	11P
C73	B	C	16F
C74	B	C	18B
C75	A	D	14O
C76	B	C	19D
C77	B	C	19D
C78	B	C	18D
C79	B	C	19C
C80	B	C	19C
C81	B	C	18I
C82	B	C	17I
C83	B	C	17I
C84	B	C	17I
C85	B	C	18C
C86	B	C	18C
C87	B	C	18C
C88	B	C	19C
C89	B	C	9N
C90	B	C	19D
C91	B	C	15H
C92	B	C	13I
C93	B	C	13I
C95	B	C	18G
C96	B	C	17F
C97	B	C	17F
C98	B	C	15I
C99	B	C	14I
C101	B	C	14I
C106	A	D	13O
C107	B	C	17G
C108	B	C	17G
C113	B	C	17D
C114	B	C	17D
C117	B	C	17F
C119	B	C	14G
C120	B	C	19E
C123	B	C	15F
C128	B	C	20F
C133	B	C	16J
C136	B	C	17H
C138	B	C	9P
C139	B	C	8O
C140	B	C	8O
C156	B	C	10P
C157	B	C	8P
C158	B	C	18E
C161	B	C	16F
C162	B	C	19B
C164	B	C	19F
C165	B	C	19G
C166	B	C	10N
C167	B	C	15I
C191	B	C	20B
C201	B	C	8M
C202	B	C	8M
C203	B	C	7M
C204	B	C	7M
C205	B	C	7M
C206	B	C	7M
C207	B	C	6N
C208	B	C	7N
C209	B	C	7M
C210	B	C	7N
C211	A	D	6N
C212	B	C	7N
C213	A	D	8M
C214	B	C	8M
C215	A	D	9M
C216	B	C	8N
C217	B	C	7M
C218	B	C	7M
C220	B	C	8M
C401	A	D	16K
C402	B	C	15K
C403	B	C	16K
C404	B	C	16K
C405	B	C	16K
C406	B	C	16K
C407	B	C	16J
C408	B	C	16K
C409	B	C	16K
C2001	B	C	15J
C2002	A	D	15J
C2003	B	C	16I
C2004	A	D	14K
C2005	B	C	14K
C2006	B	C	16I
C2007	A	D	14J
C2008	B	C	16I
C2009	A	D	14J
C2010	A	D	12J
C2013	B	C	15I
C2015	A	D	13J
C2016	A	D	13J
C2020	B	C	15I
C2021	B	C	13J
C2051	B	C	10J
C2052	A	D	10K
C2053	B	C	11K
C2054	B	C	11K
C2055	A	D	12K
C2061	A	D	11J
C2062	B	C	11J
C2063	B	C	11J
C2064	A	D	12K
C2101	A	D	11L
C2102	A	D	14J
C2103	B	C	11L
C2201	A	D	15L
C2202	A	D	16L
C2203	A	D	14L
C2204	A	D	15L
C2205	A	D	15L
C2206	A	D	15L
C2207	B	C	16L
C2208	A	D	16L
C2209	A	D	16L
C2210	A	D	16L
C2211	B	C	16L
C2212	B	C	17L
C2213	A	D	17L
C2214	B	C	18M
C2215	A	D	18M
C2216	A	D	18M
C2217	B	C	19M
C2218	B	C	18M
C2219	A	D	19M
C2220	A	D	19M
C2221	B	C	19N
C2222	A	D	19N
C2223	A	D	18N
C2224	A	D	18N
C2225	A	D	18N
C2226	A	D	17N
C2227	A	D	17N
C2228	A	D	16N
C2229	A	D	15N
C2230	A	D	16M
C2231	A	D	15N
C2232	A	D	14N
C2233	A	D	14M
C2234	A	D	15M
C2235	B	C	18L
C2236	A	D	19N
C2237	A	D	14L
C2238	A	D	13L
C2239	B	C	17N
C2243	B	C	19J
C2251	B	C	17J
C2252	B	C	18J
C2253	B	C	18J
C2254	A	D	18K
C2255	B	C	18K
C2256	B	C	18K
C2257	B	C	17K
C2258	B	C	17K
C2259	B	C	18L
C2260	B	C	17K
C2261	B	C	17K
C2262	B	C	17K
C3001	A	D	5C
C3002	B	C	4B
C3003	A	D	1B
C3004	A	D	1A
C3005	B	C	5B
C3006	B	C	5B
C3007	B	C	5E
C3008	B	C	21E
C3009	B	C	17A
C3010	B	C	9B
C3011	A	D	8G
C3012	B	C	15E
C3013	B	C	16D
C3014	B	C	16D
C3015	A	D	13E
C3016	B	C	14D
C3017	B	C	14E
C3018	A	D	13E
C3019	B	C	14E
C3020	B	C	20B
C3021	B	C	21B
C3022	B	C	21B
C3023	B	C	7I
C3024	B	C	7H
C3025	A	D	7H
C3026	B	C	7H
C3027	B	C	8J
C3028	B	C	3A
C3030	B	C	7A
C3031	B	C	3A
C3032	B	C	3A
C3033	B	C	3A
C3034	B	C	2A
C3035	B	C	17P
C3036	A	D	17O
C3037	A	D	17P
C3038	B	C	8I
C3039	B	C	8I
C3040	B	C	17B
C3301	B	C	12F
C3302	A	D	13F
C3303	B	C	13G
C3304	B	C	7D
C3305	B	C	7C
C3306	B	C	10B
C3307	B	C	10B
C3308	B	C	13G
C3309	B	C	13G
C4001	B	C	10I
C4002	B	C	9J
C4003	B	C	11H
C4004	B	C	11I
C4005	B	C	11I
C4006	A	D	10I
C4007	B	C	10H
C4008	B	C	9I
C4009	A	D	10I
C4010	A	D	8I
C4011	A	D	9I
C4012	B	C	10H
C4013	A	D	9H
C4014	B	C	10G
C4015	B	C	11H
C4016	B	C	11F
C4101	B	C	9H
C4102	A	D	9G
C4103	B	C	9H
C4104	B	C	8G
C4105	B	C	10G
C4106	B	C	11G
C4107	B	C	10H
C4108	B	C	9H
C4109	B	C	11H
C4201	B	C	11H
C4202	B	C	11H
C4203	B	C	11I
C4204	B	C	11H
C4205	A	D	11J
C4206	B	C	11I
C5001	A	D	2O
C5002	A	D	3N
C5004	A	D	1M
C5005	A	D	1L
C5006	A	D	3M
C5101	A	D	4L
C5102	A	D	2K
C5103	B	C	3L
C5104	A	D	4M
C5105	A	D	3L
C5106	A	D	4L
C5107	A	D	2K
C5108	A	D	3K
C5201	A	D	1F
C5202	A	D	2G
C5203	A	D	3F
C5204	A	D	1G
C5205	A	D	2F
C5206	A	D	3G
C5207	A	D	4G
C5208	A	D	1G
C5301	A	D	2E
C5302	A	D	3E
C5303	A	D	3E
C5304	A	D	3D
C5305	A	D	3E
C5306	B	C	1F
C5314	B	C	2C
C5315	A	D	2D
C6001	A	D	20H
C6002	B	C	20H
C6003	A	D	20J
C6004	B	C	22J
C6005	A	D	21L
C6006	B	C	20L
C6008	B	C	22L
C6012	A	D	21O
C6013	B	C	22O
C6015	A	D	21N
C6020	B	C	22L
C6021	B	C	22K
C6022	B	C	22K
C6023	B	C	22K
C6024	B	C	21J
C6031	A	D	21J
C6033	B	C	21I
C6050	B	C	22O
C6053	B	C	22O
C6519	B	C	21M
C6520	B	C	21M
C7201	B	C	13B
CONNECTOR			
CN1	A	D	15K
CN2	A	D	22A
CN3	A	D	21G
CN101	A	D	14O
CN102	A	D	10O
CN1901	A	D	22C
CN2001	A	D	10J
CN2002	A	D	20G
CN2101	A	D	11L
CN2701	A	D	15M
CN3001	A	D	8H
CN3003	A	D	8J
CN3004	A	D	10A
CN3005	A	D	3A
CN3006	A	D	3C
CN3008	A	D	18P
CN3301	A	D	14H
CN4001	A	D	7L
CN5001	A	D	1P
CN6101	A	D	20L
CN6103	A	D	22D
CN6701	A	D	22E
CN7201	A	D	20L
CN7202	A	D	19J
CN7401	A	D	6O
CIRCUIT PROTECTOR			
CP3001	A	D	8H
CP3002	A	D	13F
CP3003	A	D	8H
CP4001	A	D	6L
CP5301	A	D	2F
CP5302	A	D	8G
CP5303	A	D	2D
DIODE			
D1	A	D	11N
D9	A	D	9N
D10	A	D	8L
D11	A	D	14H
D16	A	D	19I
D20	A	D	18I
D201	A	D	6L
D202	A	D	6M
D207	A	D	6L
D208	A	D	8B
D2001	A	D	14J
D2101	B	C	19I
D2102	A	D	11L
D2201	A	D	15N
D2202	A	D	12N
D2203	B	C	19J
D2251	A	D	18K
D2252	A	D	18J
D2253	A	D	17K
D3001	A	D	13D
D3002	A	D	4D
D3003	A	D	4D
D3004	A	D	5B
D3005	A	D	4C
D3006	A	D	5B
D3007	A	D	6E
D3008	B	C	8F
D3010	A	D	13E
D3011	A	D	2B
D3012	A	D	2B
D3013	A	D	17P
D3014	A	D	5I
D3015	A	D	5H
D3016	B	C	18O
D4101	B	C	9G
D4102	B	C	10G
D4103	A	D	10H
D5001	B	C	3N
D5101	A	D	4K
D5102	A	D	3K
D5103	A	D	3M
D5104	A	D	4M
D5201	A	D	1I
D5202	A	D	4H
D5203	A	D	3I
D5204	A	D	3I
D5205	A	D	3I
D5206	A	D	2H
D5207	A	D	2I
D5208	A	D	4G
D5209	A	D	4H
D5210	A	D	4H
D5211	A	D	1I
D5214	A	D	4H
D5301	A	D	3I
D5302	A	D	4F
D5304	A	D	1F
D5305	A	D	1F
D5306	A	D	2E
D5313	A	D	2C
D5314	A	D	2D
D5351	A	D	3F
D5352	A	D	4F
D5353	A	D	3G
D6001	A	D	20H
D6002	A	D	21M
IC			
IC1	B	C	16G
IC2	B	C	19C
IC201	A	D	8M
IC2201	B	C	17M
IC2202	B	C	13L
IC2251	B	C	18K
IC3001	B	C	15D
IC3002	A	D	7I
IC3003	B	C	13E
IC3004	A	D	21A
IC3301	B	C	8D
IC3302	A	D	12G
IC4001	A	D	11I
IC4101	B	C	9H
IC4102	B	C	9G
IC4103	B	C	10H
IC5301	A	D	2E
IC7201	B	C	12B
JACK			
J1	A	D	13P
J2	A	D	12P
J3	A	D	14P
J4	A	D	11P
J5	A	D	9P
J6	A	D	8P
J3001	A	D	16P
J3002	A	D	15P
J6101	A	D	19P
J6102	A	D	20P
J7201	A	D	19K
COIL			
L1	A	D	19J
L2	A	D	19E
L3	A	D	19E
L4	A	D	18C
L5	A	D	18C
L6	A	D	18B
L7	A	D	14F
L8	A	D	12H
L9	A	D	13J
L10	A	D	10O
L11	A	D	11O
L12	A	D	19D
L13	A	D	19D
L14	A	D	13H
L16	A	D	18C
L17	A	D	17G
L20	A	D	15F
L21	A	D	10P
L23	A	D	15F
L101	A	D	13I
L202	A	D	8L
L203	A	D	8M
L204	A	D	6N
L205	A	D	6M
L401	A	D	15K
L402	A	D	16K
L2001	A	D	14J
L2251	A	D	18K
L2252	A	D	17K
L3001	A	D	5B
L3002	A	D	5C
L3003	A	D	7H
L3004	A	D	18O
L3005	A	D	15O
L3301	A	D	7C
L3302	A	D	13F
L4001	A	D	11J
L4002	A	D	11H
L4201	A	D	11H
L5201	A	D	2G
L5202	A	D	2F
L5301	A	D	3D
L6050	A	D	21O
L6601	A	D	20H
L7201	A	D	13B
TRANSISTOR			
Q1	B	C	19G
Q2	B	C	18E
Q3	B	C	18F
Q4	B	C	18E
Q6	B	C	16F
Q7	B	C	14F
Q8	B	C	11P
Q9	B	C	10P
Q10	B	C	14O
Q11	B	C	14O
Q13	B	C	19D
Q14	B	C	19D
Q15	B	C	19C
Q16	B	C	19C
Q17	B	C	12J
Q18	B	C	14I
Q19	B	C	13I
Q21	B	C	14I
Q22	B	C	12O
Q26	B	C	17E
Q32	B	C	10P
Q34	B	C	17H
Q35	B	C	17H
Q36	B	C	17I
Q37	B	C	17I
Q40	B	C	20F
Q41	B	C	19F
Q44	B	C	12I
Q45	B	C	18D
Q46	B	C	18F
Q49	B	C	15F
Q101	B	C	12I
Q108	B	C	20E
Q152	B	C	18G
Q153	B	C	19B
Q201	B	C	6N
Q202	B	C	6N
Q207	B	C	6O
Q208	B	C	7N
Q209	B	C	8L
Q210	B	C	6M
Q401	B	C	14K
Q402	B	C	15K
Q403	B	C	16K
Q404	B	C	16K
Q405	B	C	16J
Q2001	B	C	13K
Q2002	B	C	13K
Q2003	B	C	13K
Q2051	B	C	11K
Q2052	B	C	13K
Q2053	B	C	13K
Q2054	B	C	12K
Q2055	B	C	12K
Q2061	B	C	12J
Q2062	B	C	12K
Q2063	B	C	12K
Q2101	B	C	12L
Q2102	B	C	14K
Q2103	B	C	14K
Q2251	B	C	17K
Q2253	B	C	17L
Q2256	B	C	18L
Q2257	B	C	18L
Q2711	B	C	21N
Q2712	B	C	21N
Q2713	B	C	22N
Q2714	B	C	22N
Q3001	A	D	5E
Q3002	A	D	20E
Q3003	B	C	5B
Q3005	B	C	7H
Q3006	B	C	16P
Q3007	A	D	16O
Q3008	B	C	12D
Q3301	B	C	12F
Q4001	B	C	10G
Q4101	B	C	10G
Q4102	B	C	9G
Q4201	B	C	11I
Q5101	A	D	2L
Q5102	A	D	4N
Q5301	A	D	4G
Q5302	B	C	4H
Q5317	A	D	2D
Q5318	B	C	2D
Q5451	A	D	4F
Q5452	B	C	5C
Q6001	A	D	20H
Q6007	B	C	21N
Q6008	B	C	21N
Q6030	B	C	20I
Q6031	B	C	21I
Q6501	B	C	21M
Q6502	B	C	21M
Q6601	A	D	20H
RESISTOR			
R1	B	C	19E
R2	B	C	18F
R3	B	C	18F
R4	B	C	18G
R5	A	D	19G
R6	B	C	18E
R7	B	C	17F
R10	B	C	16F
R11	B	C	17C
R13	B	C	16F
R16	B	C	14F
R20	B	C	14H
R21	B	C	12G
R22	B	C	13H
R23	B	C	12I
R24	B	C	15H
R25	B	C	14I
R26	B	C	11O
R27	B	C	11P
R28	B	C	11O
R29	A	D	10P
R30	B	C	12P
R32	B	C	14O
R33	B	C	21O
R34	B	C	10N
R36	B	C	14O
R37	B	C	14O
R38	B	C	12O
R39	B	C	14O
R40	B	C	14O
R44	B	C	11O
R45	B	C	11O
R46	B	C	18D
R47	B	C	19D
R48	B	C	18D
R49	B	C	19D
R50	B	C	19D
R52	B	C	16I
R54	B	C	19C
R55	B	C	19C
R57	B	C	19F
R59	B	C	17F
R60	B	C	10N
R61	B	C	10N
R62	B	C	12G
R63	B	C	13H
R64	B	C	14I
R65	B	C	13I
R68	B	C	17E
R69	B	C	17E
R71	B	C	13J
R74	B	C	13I
R75	B	C	14I
R77	B	C	13I
R79	B	C	13O
R80	B	C	12O
R82	B	C	9O
R83	B	C	9P
R84	B	C	8P
R85	B	C	8O
R86	B	C	8O
R87	B	C	14O
R94	B	C	19C
R95	B	C	17D
R96	B	C	17E
R97	B	C	17E
R98	B	C	17E
R99	B	C	17E
R101	B	C	12H
R112	B	C	18G
R113	B	C	10N
R114	B	C	10P
R115	B	C	10P
R116	B	C	18E
R117	B	C	14I
R120	B	C	19F
R121	B	C	19F
R125	B	C	20F
R133	B	C	19E
R134	B	C	6H
R137	B	C	18G
R138	B	C	11F
R139	B	C	18D
R140	B	C	18E
R144	B	C	10P
R145	B	C	9P
R146	B	C	8P
R147	B	C	7P
R148	B	C	8O
R156	B	C	18B
R157	B	C	19B
R158	B	C	19B
R170	B	C	15F
R171	B	C	15F
R173	B	C	8J
R177	B	C	15I
R180	B	C	12N
R201	B	C	8M
R202	B	C	8M
R203	B	C	7L
R204	B	C	7M
R205	B	C	6M
R206	B	C	6L
R207	B	C	7M
R208	B	C	7N
R209	B	C	7N
R210	B	C	7N
R211	B	C	8N
R212	B	C	8N
R213	B	C	7N
R214	B	C	7N
R216	B	C	7M
R217	B	C	6M
R218	B	C	6M
R228	B	C	8M
R230	B	C	8M
R231	B	C	6N
R232	B	C	8L
R233	B	C	9M
R234	B	C	6M
R401	B	C	15K
R402	B	C	15K
R403	B	C	16L
R404	B	C	16K
R405	B	C	16L
R408	B	C	16K
R409	B	C	16J
R410	B	C	16K
R2001	B	C	15J
R2002	B	C	16I
R2003	B	C	16I
R2004	B	C	16I
R2005	B	C	14K
R2006	B	C	13K
R2007	B	C	13J
R2008	B	C	13J
R2013	B	C	14K
R2014	B	C	15I
R2015	B	C	13J
R2016	B	C	13J
R2018	B	C	13K
R2019	B	C	13K
R2051	B	C	10K
R2052	B	C	10K
R2053	B	C	10K
R2054	B	C	11K
R2055	B	C	11K
R2056	A	D	12K
R2057	B	C	13K
R2058	B	C	13K
R2059	B	C	12K
R2060	B	C	13K
R2061	B	C	11J
R2062	B	C	12J
R2063	B	C	12J
R2101	B	C	11L
R2102	B	C	12L
R2103	B	C	12L
R2104	B	C	11L
R2105	B	C	14J
R2106	B	C	14K
R2107	B	C	14K
R2201	B	C	16M
R2202	B	C	14L
R2203	B	C	15L
R2204	B	C	15L
R2205	B	C	15L
R2206	B	C	14L
R2207	B	C	15L
R2208	B	C	15L
R2209	B	C	15L
R2210	B	C	16L
R2211	B	C	16L
R2212	B	C	18M
R2213	B	C	19N
R2214	B	C	19N
R2215	B	C	18N
R2216	B	C	18N
R2217	B	C	18N
R2218	B	C	17N
R2219	B	C	18N
R2220	B	C	18N
R2221	B	C	18N
R2222	B	C	17N
R2223	B	C	16N
R2224	B	C	16N
R2225	B	C	16N
R2226	B	C	16M
R2227	B	C	15M
R2228	B	C	15N
R2229	B	C	15M
R2230	B	C	15M
R2231	B	C	15M
R2232	B	C	17N
R2233	B	C	18N
R2234	B	C	17N
R2235	B	C	14M
R2236	B	C	13M
R2237	B	C	13L
R2238	B	C	13L
R2239	B	C	14L
R2240	B	C	16N
R2241	B	C	14L
R2242	B	C	19I
R2243	B	C	19I
R2251	B	C	18J
R2254	B	C	18K
R2255	B	C	17K
R2256	B	C	18L
R2257	B	C	17L
R2258	B	C	17K
R2259	B	C	19L
R2260	B	C	18M
R2261	B	C	18L
R2262	B	C	18L
R2601	B	C	13P
R2602	B	C	12P
R2603	B	C	12P
R2604	B	C	11P
R2605	B	C	12P
R2606	B	C	12P
R2607	B	C	13P
R2608	B	C	13P
R2609	B	C	15P
R2610	B	C	14P
R2711	B	C	14M
R2712	B	C	14M
R2715	B	C	21N
R2716	B	C	21N
R2717	B	C	15M
R2718	B	C	15M
R3001	B	C	15E
R3002	B	C	14E
R3003	B	C	14E
R3004	B	C	14E
R3010	B	C	14E
R3014	B	C	12E
R3015	B	C	12E
R3016	B	C	12E
R3017	B	C	12E
R3018	B	C	12E
R3019	B	C	12D
R3020	B	C	12E
R3021	B	C	12D
R3022	B	C	12D
R3023	B	C	12D
R3024	B	C	12D
R3025	B	C	13C
R3026	B	C	13C
R3027	B	C	13C
R3028	B	C	12C
R3029	B	C	13C
R3030	B	C	12C
R3031	B	C	13C
R3032	B	C	12C
R3033	B	C	13C
R3034	B	C	12C
R3035	B	C	13C
R3036	B	C	13C
R3037	B	C	13B
R3038	B	C	14B
R3039	B	C	14B
R3040	B	C	14B
R3041	B	C	14B
R3042	B	C	15B
R3043	B	C	15B
R3044	B	C	15B
R3045	B	C	15B
R3046	B	C	15B
R3047	B	C	15B
R3048	B	C	15C
R3049	B	C	16B
R3050	B	C	15B
R3051	B	C	16C
R3052	B	C	16C
R3053	B	C	16B
R3054	B	C	16B
R3055	B	C	16C
R3056	B	C	16C
R3057	B	C	16C
R3058	B	C	16C
R3059	B	C	16C
R3060	B	C	17C
R3061	B	C	17C
R3062	B	C	17C
R3064	B	C	16D
R3065	B	C	16D
R3066	B	C	16D
R3067	B	C	16D
R3068	B	C	16D
R3069	B	C	16D
R3070	B	C	16E
R3071	B	C	16E
R3073	B	C	16E
R3074	B	C	16E
R3075	B	C	16E
R3076	B	C	16E
R3077	B	C	16E
R3078	B	C	15E
R3079	B	C	15E
R3080	B	C	15E
R3201	B	C	2A
R3202	B	C	3B
R3203	B	C	7B
R3204	B	C	7G
R3205	B	C	7H
R3206	B	C	7H
R3207	B	C	7H
R3209	A	D	11D
R3210	B	C	5D
R3211	B	C	21E
R3212	B	C	17A
R3213	B	C	17A
R3214	B	C	10B
R3215	B	C	9B
R3216	B	C	17O
R3217	B	C	17O
R3218	B	C	17O
R3219	A	D	16O
R3220	B	C	2C
R3221	B	C	1B
R3222	B	C	5B
R3223	B	C	5B
R3224	B	C	5B
R3225	B	C	5B
R3226	B	C	5E
R3227	B	C	5D
R3228	B	C	5E
R3229	B	C	5E
R3230	B	C	13E
R3231	B	C	13E
R3232	B	C	13E
R3233	B	C	20A
R3234	B	C	20B
R3235	B	C	20B
R3236	B	C	20B
R3237	B	C	2B
R3238	B	C	2B
R3239	B	C	2C
R3240	B	C	3B
R3241	B	C	3B
R3242	B	C	3B
R3243	B	C	17P
R3244	B	C	15E
R3245	B	C	15E
R3246	B	C	15E
R3247	B	C	15E
R3248	B	C	14E
R3249	B	C	11C
R3250	B	C	12E
R3251	B	C	12E
R3252	B	C	12E
R3253	B	C	11E
R3254	B	C	14B
R3255	B	C	3B
R3256	B	C	3A
R3257	B	C	2B
R3301	B	C	7D
R3302	B	C	7D
R3303	B	C	7D
R3304	B	C	7C
R3310	B	C	7C
R3314	B	C	7B
R3315	B	C	7B
R3316	B	C	7B
R3317	B	C	7B
R3318	B	C	8B
R3319	B	C	8C
R3320	B	C	8B
R3321	B	C	8B
R3322	B	C	8C
R3323	B	C	8B
R3324	B	C	8C
R3325	B	C	9B
R3326	B	C	9B
R3327	B	C	9B
R3329	B	C	9C
R3330	B	C	9C
R3331	B	C	10C
R3332	B	C	10C
R3333	B	C	10B
R3334	B	C	11B
R3335	B	C	11B
R3336	B	C	11B
R3337	B	C	11B
R3338	B	C	11C
R3339	B	C	11C
R3340	B	C	11C
R3341	B	C	11C
R3342	B	C	11C
R3343	B	C	10D
R3344	B	C	10D
R3345	B	C	10D
R3346	B	C	10D
R3347	B	C	10D
R3348	B	C	10D
R3349	B	C	10E
R3350	B	C	10E
R3351	B	C	10E
R3352	B	C	10E
R3353	B	C	10E
R3354	B	C	9E
R3355	B	C	9E
R3356	B	C	9E
R3358	B	C	9F
R3359	B	C	9E
R3360	B	C	9F
R3361	B	C	9E
R3362	B	C	9E
R3364	B	C	9F
R3365	B	C	8F
R3366	B	C	8F
R3367	B	C	8F
R3368	B	C	8E
R3369	B	C	8F
R3370	B	C	8F
R3371	B	C	7E
R3373	B	C	7E
R3374	B	C	7E
R3375	B	C	7F
R3376	B	C	7E
R3377	B	C	7E
R3378	B	C	7E
R3379	B	C	7E
R3380	B	C	7D
R3501	B	C	7B
R3502	B	C	7B
R3503	B	C	7B
R3505	B	C	3B
R3506	B	C	6C
R3507	B	C	7E
R3508	B	C	7E
R3509	B	C	6B
R3510	B	C	14B
R3511	B	C	12E
R3512	B	C	13F
R3513	B	C	12F
R3514	B	C	12F
R3515	B	C	13F
R3516	B	C	13F
R3517	B	C	5C
R4001	B	C	10I
R4003	B	C	9J
R4004	B	C	9J
R4005	B	C	9J
R4006	B	C	11H
R4008	B	C	11I
R4009	B	C	10H
R4010	B	C	10I
R4011	B	C	8I
R4012	B	C	11F
R4013	B	C	10H
R4014	B	C	11G
R4101	B	C	10H
R4102	B	C	9H
R4103	B	C	9G
R4104	B	C	9G
R4105	B	C	9G
R4106	B	C	10H
R4107	B	C	9H
R4108	B	C	8G
R4109	B	C	10G
R4110	B	C	10G
R4111	B	C	9H
R4112	B	C	9H
R4113	B	C	11H
R4114	B	C	11G
R4115	B	C	9G
R4201	B	C	11I
R4202	B	C	11I
R4203	B	C	11I
R5001	A	D	3Q
R5002	A	D	5O
R5101	A	D	4N
R5102	A	D	4M
R5103	A	D	4N
R5104	A	D	4J
R5105	A	D	2K
R5106	A	D	2L
R5107	A	D	1L
R5108	B	C	4M
R5109	B	C	3L
R5110	B	C	3L
R5111	B	C	4L
R5113	B	C	4M
R5301	B	C	1E
R5302	B	C	1D
R5303	B	C	1D
R5304	B	C	1D
R5306	B	C	3D
R5307	A	D	4I
R5308	B	C	4G
R5309	B	C	4H
R5312	B	C	4F
R5313	B	C	4E
R5314	A	D	1F
R5324	B	C	1E
R5325	B	C	1E
R5344	B	C	3D
R5345	B	C	1C
R5346	B	C	3D
R5347	B	C	1C
R5451	B	C	4F
R5452	A	D	4G
R6001	B	C	20H
R6002	B	C	20H
R6013	B	C	21N
R6014	B	C	21N
R6020	B	C	21K
R6021	B	C	21K
R6022	B	C	21K
R6023	B	C	21K
R6025	B	C	14A
R6030	B	C	21H
R6032	B	C	20J
R6033	B	C	21J
R6034	B	C	21I
R6038	B	C	21J
R6050	B	C	21O
R6053	B	C	21O
R6101	B	C	20N
R6102	B	C	20N
R6508	B	C	21M
R6509	B	C	21M
R6510	B	C	21M
R6511	B	C	21M
R6601	B	C	20H
R7201	B	C	11B
R7221	B	C	13B
R7236	B	C	11C
TEST POINT			
TP106	A	D	21F
TP111	A	D	8L
TP2033	A	D	10L
TP2034	A	D	10K
TP2253	A	D	18L
TP2254	A	D	18L
TP3002	A	D	13E
TP4001	A	D	8L
TPGND	A	D	1D
OTHER			
CF3001	A	D	13E
CF3301	A	D	7C
CF7201	A	D	12A
CHIP-A	B	C	12J
CHIP-B	B	C	12I
CR5001	A	D	4N
F5001	A	D	1O
FW2001	A	D	20G
FW2001A	A	D	10L
K5101	A	D	3K
LF5002	A	D	4P
PC03764	B	C	15I
PC03765	B	C	13I
PC03766	B	C	14I
PC03767	B	C	13I
PC03768	B	C	12J
PC03769	B	C	12I
PC03770	B	C	12J
PC03771	B	C	12I
PC5101	A	D	5M
PS3001	A	D	17A
PS3002	A	D	9C
S3001	A	D	7A
S6050	A	D	17P
SG5001	A	D	4P
T2051	A	D	11K
T2052	A	D	11J
T5001	A	D	1K
TL3003	B	C	14B
TL3301	A	D	5G
TU6001	A	D	21P
VA5001	A	D	1P
VA5002	A	D	5P
VR2251	A	D	18L
VR5301	A	D	2C
WR2701	B	C	19I
WR2702	B	C	21N
WR2703	B	C	16N
WR2704	B	C	16N
X1	A	D	18G
X2	A	D	18G
X3001	A	D	14E
X4201	A	D	11H

4.11 3D SVHS (VIDEO) SCHEMATIC DIAGRAM


05 3D SVHS (VIDEO)
TO 3D/TBC (Page 4-27)
C_FROM_DIGI
Y_FROM_DIGI
V/Y_TO_DIGI
C_TO_DIGI
TO JACK CN7192 (P0age 4-42)
FRONT_Y
GND
FRONT_C
GND
TO 3D/TBC (Page 4-27)
EE(H)
DOC
FSC
C.KILLER
SW5V
GND
V.REF
LBOX(H)
TRICK
I2C_CLK
SLOW_P
I2C_DATA
D.FF
VP_CTL
IC1001 JCP8008
IC1002 VC2076MP
IC1003 MM1117XF
IC1005 MC14052BF
IC1004 OPEN
Q1001 OPEN
Q1003 DTC144WUA
Q1008 DTC143TUA
Q1009 DTC144WUA
Q1010 DTC144WUA
Q1011 2SA1576A/QR
Q1013 2SA1576A/QR
Q1016 DTC144WUA
Q1017 OPEN
Q1021 2SA1576A/QR
Q1022 DTC144WUA
D1001 OPEN
D1007 1SS133
D1008 OPEN
VR1001 PB Y LEVEL ADJ.
VR1004 OPEN EE Y LEVEL ADJ.
WF1
WF2
WF3
WF4
WF5
WF6
WF7
WF8
WF9
WF10
WF11
WF12
WF13
WF14
WF15
WF16
TO VIDEO/AUDIO CN101 (Page 4-6) CN1001
VP_CTL
D.FF
I2C_DATA
SLOW_PULSE
I2C_CLK
TRICK
NC
LETER_BOX(H)
V-REF
NC
GND
SW5V(2)
SW5V(2)
CNR_ON(H)(NC)
C.SYNCNO
3.58NTSC(H)
FSC
NC
V.PULSE
PB_COLOR
V.STB(L)
L1_Y_IN
DOC
L1_C_IN
REAR(L)
NC
FRONT(L)
L1_V_IN
TO VIDEO/AUDIO CN102 (Page 4-6) CN1002
R1_Y_IN
C2(L)
R1_C_IN
WA_DET
F1_V_IN
GND
TU_V_IN
ME_ALC_DET
PB_Y
P_MUTE(L)
Y_TO_AV1
SVHS(L)
GND
GND
Y_FROM_AV1
GND
I2C_CLK
I2C_DATA
SW5V
SW5V
V_TO_OSD
GND
V_FROM_OSD
CHARA_DATA
BIAS_FOR_C_OUT
REC_C_OUT
SW12V
Y_OUT
GND
C_OUT
A
B
C
D
E
F
G
H
1
2
3
4
5

NOTE : For VIDEO waveforms, please refer to page4-31.

4.12 3D SVHS (3D/TBC) SCHEMATIC DIAGRAM

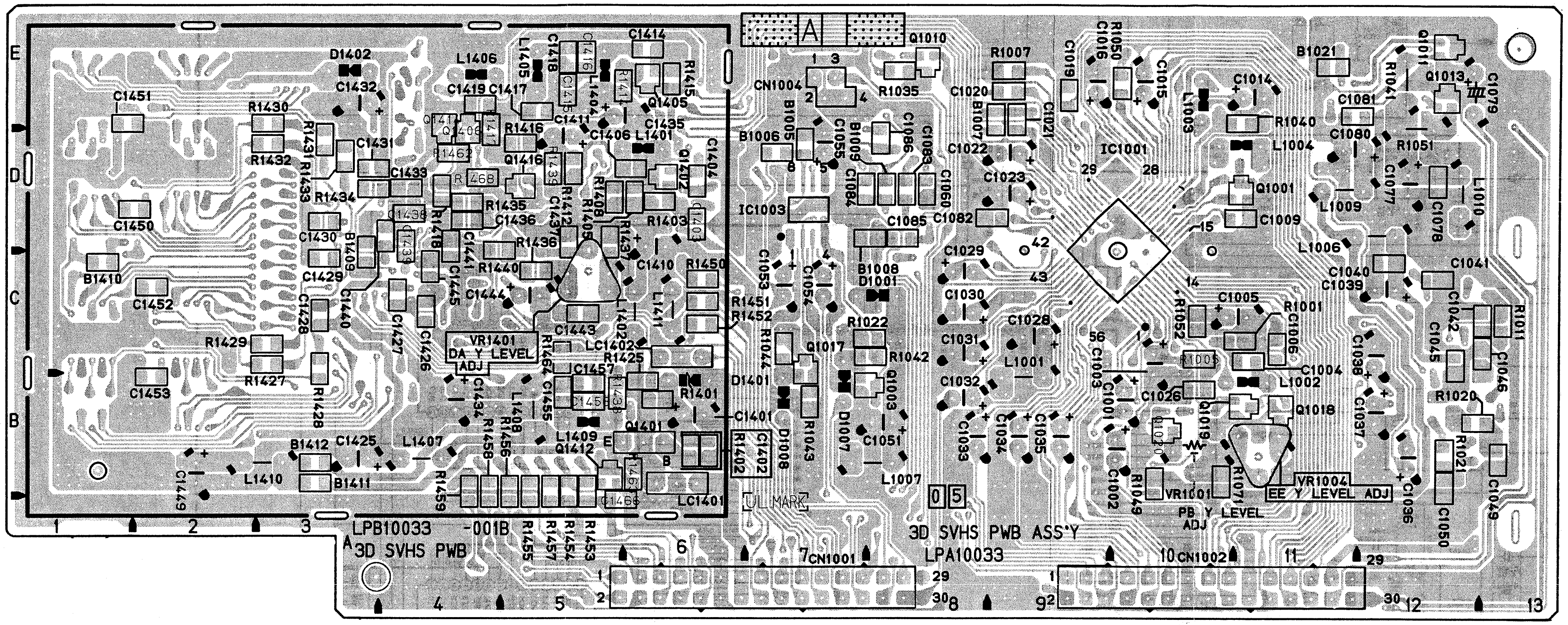

05 3D SVHS(3D/TBC)
TO VIDEO (Page 4-25)
Y_FROM_DIGI
C_FROM_DIGI
V/Y_TO_DIGI
C_TO_DIGI
TO VIDEO (Page 4-25)
SW5V
GND
EE(H)
DOC
FSC
C.KILLER
V.REF
LBOX(H)
TRICK
I2C_CLK
I2C_DATA
SLOW_P
D.FF
VP_CTL
IC1401 JCP8010
IC1402 MN47V77S
IC1403 MN47V77S
VR1401 : DA Y LEVEL ADJ
WF1
WF2
WF3
WF4
Q1401 2SC1317/RS
Q1402 2SC4081/QRS
Q1403 2SC4081/QRS
Q1404 2SC4081/S
Q1405 2SC4081/QRS
Q1406 2SA1576A/QR
Q1407 2SA1576A/QR
Q1408 2SA1576A/QR
Q1409 2SA1576A/QR
Q1410 2SC4081/S
Q1411 2SA1576A/QR
Q1412 DTC144WUA
Q1413 DTC144WUA
Q1414 DTC144WUA
Q1415 DTC144WUA
Q1416 DTC144WUA
Q1417 2SC4081/QRS
Q1419 DTA144WUA
D1401 RD3.9ES/B2
D1402 1SS133

NOTE : For 3D/TBC waveforms, please refetr to page4-31.
But the waveform points "WF1-WF4" are the shield case inside, therefore the measurement is impossible.
In this case, please refer to the waveforms of the 3D SVHS(VIDEO) as indicated in the following chart.

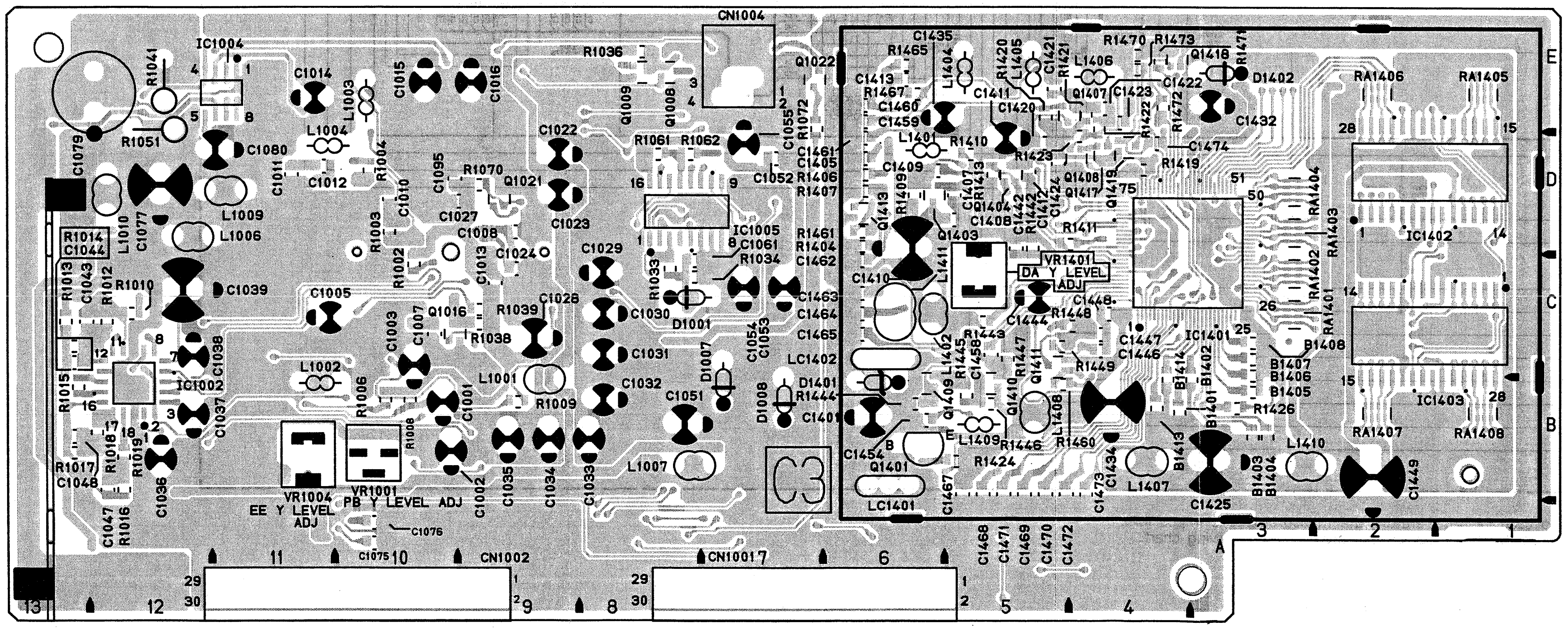
3D/TBC	VIDEO
WF1	WF6
WF2	WF8
WF3	WF5
WF4	WF16

4.13 3D SVHS CIRCUIT BOARD

— FOIL SIDE (B) —



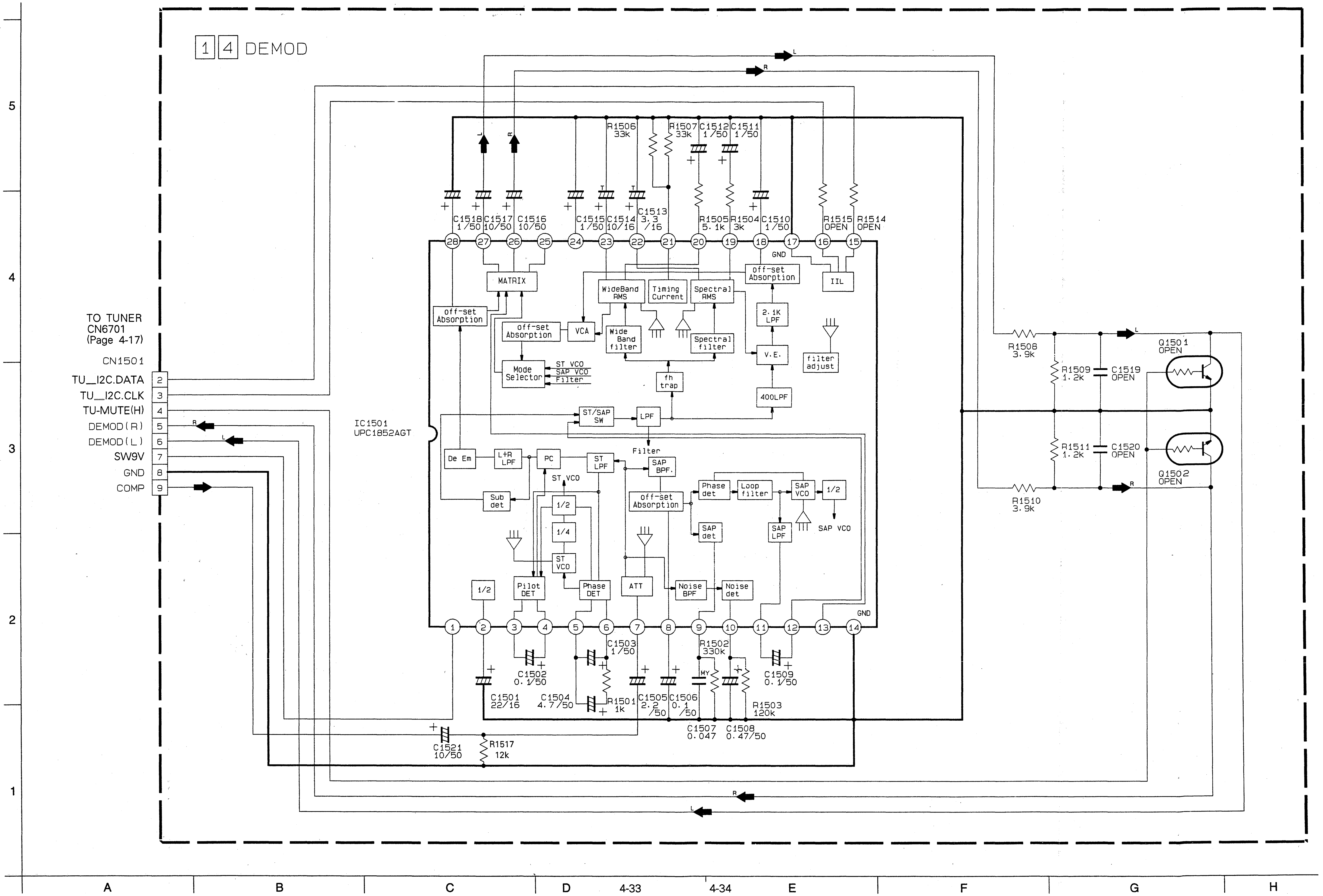
— COMPONENT SIDE (A) —



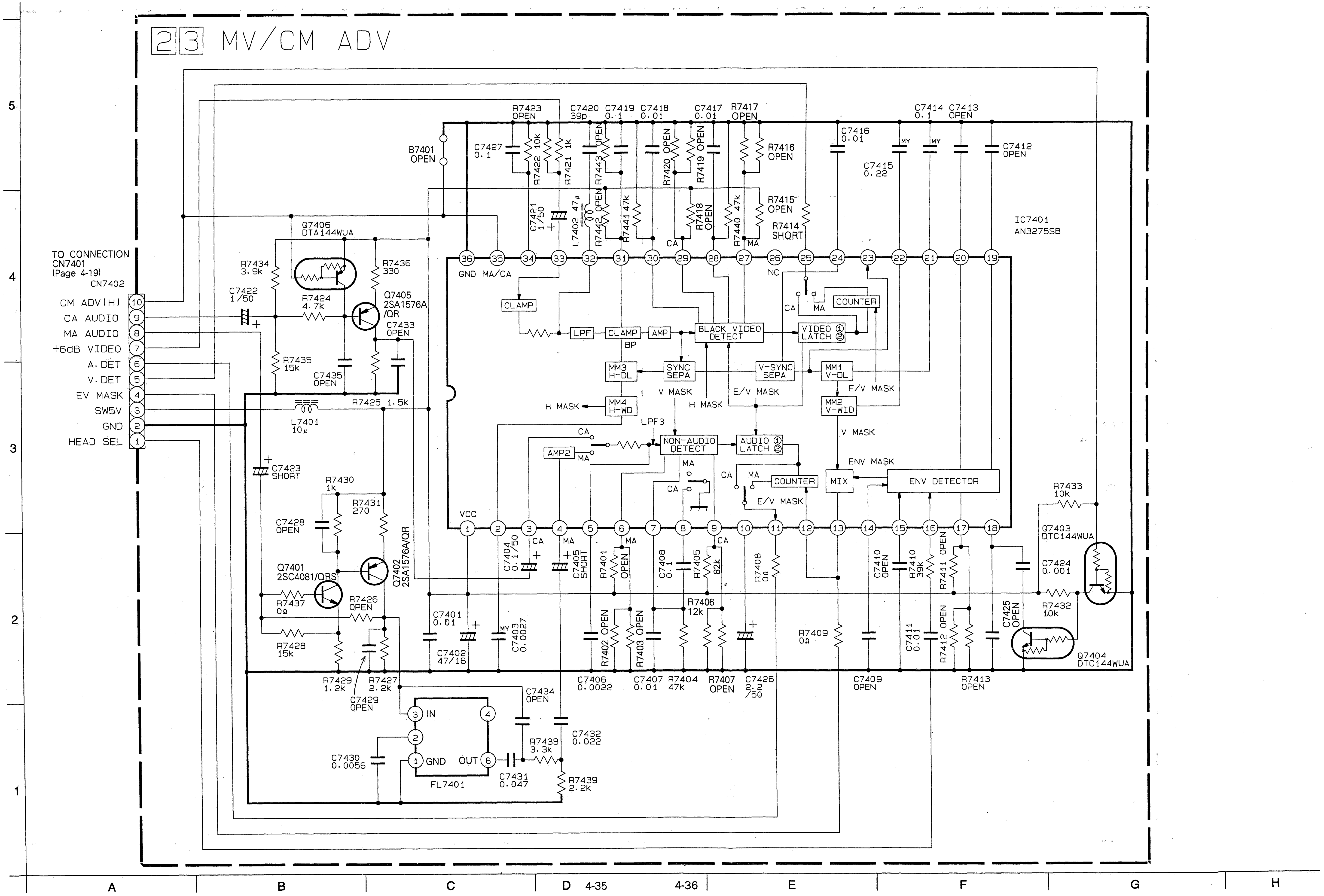
COMPONENT PARTS LOCATION GUIDE (3D SVHS)

REF.NO.	LOCATION		
CAPACITOR			
C1001	A	D	10B
C1002	A	D	10B
C1003	A	D	10C
C1004	B	C	11C
C1005	A	D	10C
C1006	B	C	11C
C1007	A	C	10C
C1008	A	C	9D
C1009	B	C	11D
C1010	A	C	10D
C1011	A	C	11D
C1012	A	C	11D
C1013	A	C	9C
C1014	A	D	11E
C1015	A	D	10E
C1016	A	D	9E
C1019	B	C	9E
C1020	B	C	9E
C1021	B	C	9E
C1022	A	D	9D
C1023	A	D	9D
C1024	A	C	9C
C1026	B	C	10B
C1027	A	C	10D
C1028	A	D	9C
C1029	A	D	8C
C1030	A	D	8C
C1031	A	D	8C
C1032	A	D	8B
C1033	A	D	8B
C1034	A	D	9B
C1035	A	D	9B
C1036	A	D	12B
C1037	A	D	12B
C1038	A	D	12C
C1039	A	D	12C
C1040	B	C	12C
C1041	B	C	12C
C1042	B	C	13C
C1043	A	C	13C
C1044	A	C	13C
C1045	B	C	12C
C1046	B	C	13C
C1047	A	C	12B
C1048	A	C	13B
C1049	B	C	13B
C1050	B	C	12B
C1051	A	D	8B
C1052	A	C	7D
C1053	A	D	7C
C1054	A	D	7C
C1055	A	D	7D
C1060	B	C	8D
C1061	A	C	8C
C1075	A	C	10A
C1076	A	C	10A
C1077	A	D	12D
C1078	B	C	12D
C1079	A	D	12E
C1080	A	D	12D
C1081	B	C	12E
C1082	B	C	9D
C1083	B	C	8D
C1084	B	C	8D
C1085	B	C	8D
C1086	B	C	8D
C1095	A	C	10D
C1401	A	D	6B
C1402	B	C	6B
C1403	B	C	6D
C1404	B	C	6D
C1405	A	C	6D
C1406	B	C	6D
C1407	A	C	5D
C1408	A	C	5D
C1409	A	C	6D
C1410	A	D	6D
C1411	A	D	5D
C1412	A	C	5D
C1413	A	C	6E
C1414	B	C	6E
C1415	B	C	5E
C1416	B	C	5E
C1417	B	C	5E
C1418	B	C	5E
C1419	B	C	4E
C1420	A	C	5D
C1421	A	C	5E
C1422	A	C	4E
C1423	A	C	4E
C1424	A	C	5D
C1425	A	D	3B
C1426	B	C	4C
C1427	B	C	4C
C1428	B	C	3C
C1429	B	C	3C
C1430	B	C	3D
C1431	B	C	3D
C1432	A	D	3E
C1433	B	C	4D
C1434	A	D	4B
C1435	A	D	5E
C1436	B	C	4D
C1437	B	C	5D
C1438	B	C	4D
C1439	B	C	4D
C1440	B	C	4D
C1441	B	C	4D
C1442	A	C	5D
C1443	B	C	5C
C1444	A	D	5C
C1445	B	C	4C
C1446	A	C	4C
C1447	A	C	4C
C1448	A	C	4C
C1449	A	D	2B
C1450	B	C	2D
C1451	B	C	1E
C1452	B	C	2C
C1453	B	C	2B
C1454	A	C	6B
C1455	B	C	5B
C1456	B	C	5B
C1457	B	C	5B
C1458	A	C	5C
C1459	A	C	6E
C1460	A	C	6E
C1461	A	C	6D
C1462	A	C	6C
C1463	A	C	6C
C1464	A	C	6C
C1465	A	C	6C
C1466	B	C	6A
C1467	A	C	5B
C1468	A	C	5B
C1469	A	C	5B
C1470	A	C	5B
C1471	A	C	5B
C1472	A	C	5B
C1473	A	C	4B
C1474	A	C	4D
CONNECTOR			
CN1001	A	D	6A
CN1002	A	D	9A
CN1004	A	D	7E
DIODE			
D1001	A	D	7C
D1007	A	D	7C
D1008	A	D	7B
D1401	A	D	6B
D1402	A	D	3E
IC			
IC1001	B	C	10D
IC1002	A	C	12B
IC1003	B	C	7D
IC1004	A	C	11E
IC1005	A	C	8D
IC1401	A	C	4D
IC1402	A	C	2D
IC1403	A	C	2C
COIL			
L1001	A	D	9B
L1002	A	D	11B
L1003	A	D	10E
L1004	A	D	10D
L1006	A	D	12D
L1007	A	D	8B
L1009	A	D	11D
L1010	A	D	12D
L1401	A	D	6D
L1402	A	D	6C
L1404	A	D	5E
L1405	A	D	5E
L1406	A	D	4E
L1407	A	D	4B
L1408	A	D	5B
L1409	A	D	5B
L1410	A	D	3B
L1411	A	D	6C
TRANSISTOR			
Q1001	B	C	11D
Q1003	B	C	8B
Q1008	A	C	8E
Q1009	A	C	8E
Q1010	B	C	8E
Q1011	B	C	12E
Q1013	B	C	12E
Q1016	A	C	10C
Q1017	B	C	7C
Q1018	B	C	11B
Q1019	B	C	11B
Q1020	B	C	10B
Q1021	A	C	9D
Q1022	A	C	7E
Q1401	A	D	6B
Q1402	B	C	6D
Q1403	A	C	6D
Q1404	A	C	5D
Q1405	B	C	6E
Q1406	B	C	4D
Q1407	A	C	5E
Q1408	A	C	4D
Q1409	A	C	6B
Q1410	A	C	5B
Q1411	A	C	5C
Q1412	B	C	5B
Q1413	A	C	6D
Q1414	B	C	4D
Q1416	B	C	5D
Q1417	A	C	4D
Q1418	A	C	4E
Q1419	A	C	4D
RESISTOR			
R1001	B	C	11C
R1002	A	C	10C
R1003	A	C	10D
R1004	A	C	10D
R1005	B	C	10C
R1006	A	C	10B
R1007	B	C	9E
R1008	A	C	10B
R1009	A	C	9B
R1010	A	C	12C
R1011	B	C	13C
R1012	A	C	12C
R1013	A	C	13C
R1014	A	C	13C
R1015	A	C	13B
R1016	A	C	12B
R1017	A	C	13B
R1018	A	C	12B
R1019	A	C	12B
R1020	B	C	13B
R1021	B	C	12B
R1022	B	C	8C
R1033	A	C	8C
R1034	A	C	8C
R1035	B	C	8E
R1036	A	C	8E
R1038	A	C	9C
R1039	A	C	9C
R1040	B	C	11E
R1041	A	D	12E
R1042	B	C	8C
R1043	B	C	7B
R1044	B	C	7C
R1049	B	C	10B
R1050	B	C	10E
R1051	A	D	12E
R1052	B	C	10C
R1061	A	C	8D
R1062	A	C	8D
R1070	A	C	9D
R1071	B	C	10B
R1072	A	C	7E
R1401	B	C	6B
R1402	B	C	6B
R1403	B	C	6D
R1404	A	C	6D
R1405	B	C	6D
R1406	A	C	6D
R1407	A	C	6D
R1408	B	C	5D
R1409	A	C	6D
R1410	A	C	5D
R1411	A	C	5D
R1412	B	C	5D
R1413	A	C	5D
R1414	B	C	6E
R1415	B	C	6E
R1416	B	C	5D
R1417	B	C	4D
R1418	B	C	4D
R1419	A	C	4D
R1420	A	C	5E
R1421	A	C	4E
R1422	A	C	4E
R1423	A	C	4D
R1424	A	C	5B
R1425	B	C	6B
R1426	A	C	3B
R1427	B	C	3C
R1428	B	C	3C
R1429	B	C	3C
R1430	B	C	3E
R1431	B	C	3D
R1432	B	C	3D
R1433	B	C	3D
R1434	B	C	3D
R1435	B	C	4D
R1436	B	C	5C
R1437	B	C	5D
R1438	B	C	5B
R1439	B	C	5D
R1440	B	C	5D
R1442	A	C	5D
R1443	A	C	5C
R1444	A	C	6B
R1445	A	C	5B
R1446	A	C	5B
R1447	A	C	5C
R1448	A	C	4C
R1449	A	C	5C
R1450	B	C	6C
R1451	B	C	6C
R1452	B	C	6C
R1453	B	C	5B
R1454	B	C	5B
R1455	B	C	5B
R1456	B	C	5B
R1457	B	C	5B
R1458	B	C	4B
R1459	B	C	4B
R1460	A	C	5B
R1461	A	C	6D
R1462	B	C	4D
R1463	B	C	6B
R1464	B	C	5C
R1465	A	C	6E
R1467	A	C	6E
R1468	B	C	4D
R1470	A	C	4E
R1471	A	C	4E
R1472	A	C	4E
R1473	A	C	4E
OTHER			
LC1401	A	D	6B
LC1402	A	D	6C
RA1401	A	C	3C
RA1402	A	C	3C
RA1403	A	C	3D
RA1404	A	C	3D
RA1405	A	C	1E
RA1406	A	C	2E
RA1407	A	C	2B
RA1408	A	C	1B
VR1001	A	D	10B
VR1004	A	D	11B
VR1401	A	D	5C

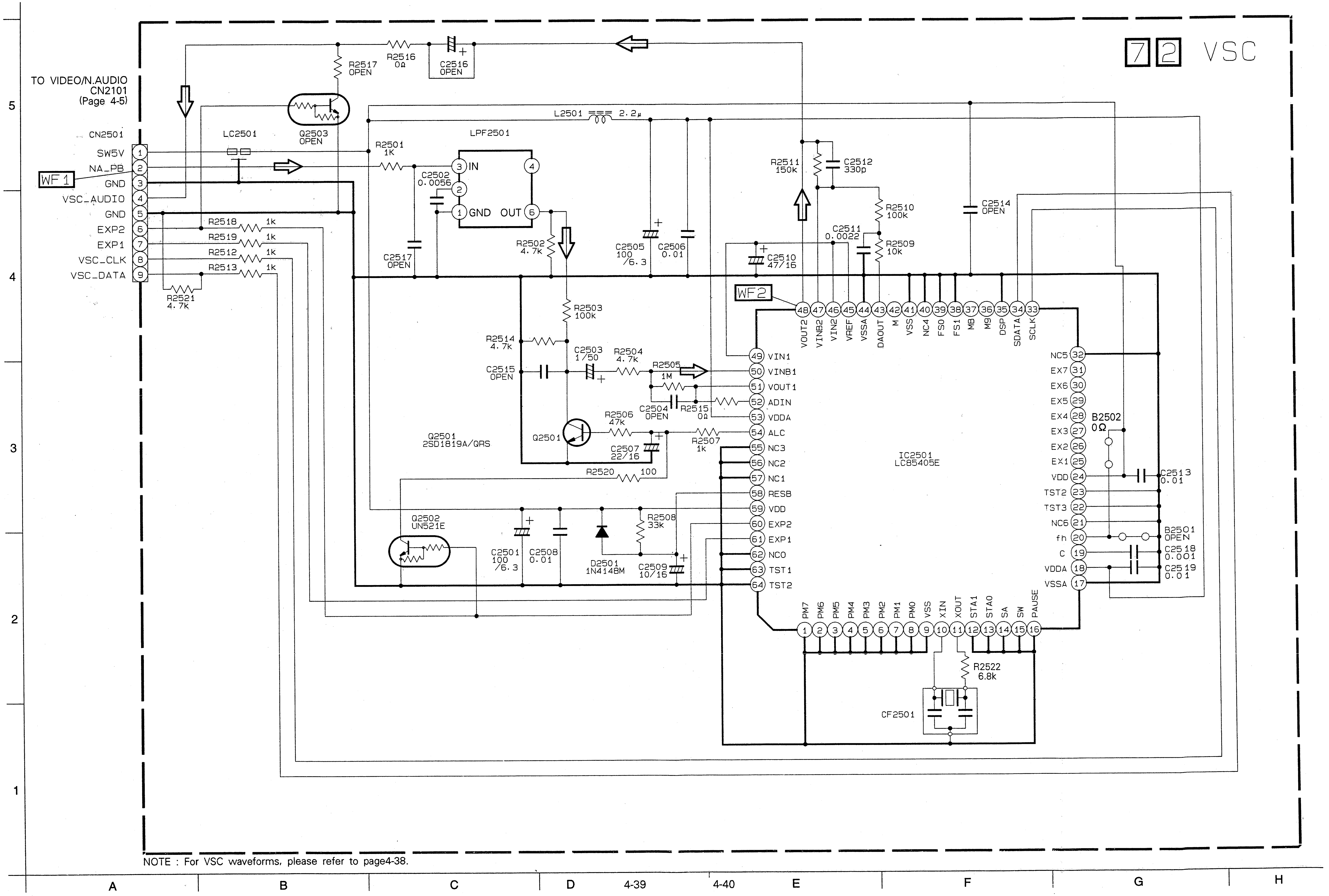
4.15 DEMODULATOR SCHEMATIC DIAGRAM


1 4 DEMOD
TO TUNER
CN6701
(Page 4-17)
CN1501
TU_I2C.DATA 2
TU_I2C.CLK 3
TU-MUTE(H) 4
DEMOD(R) 5
DEMOD(L) 6
SW9V 7
GND 8
COMP 9
IC1501
UPC1852AGT
R1506 33k
R1507 33k
C1512 1/50
C1511 1/50
C1518 1/50
C1517 10/50
C1516 10/50
C1515 1/50
C1514 10/16
C1513 3.3 /16
R1505 5.1k
R1504 3k
C1510 1/50
R1515 OPEN
R1514 OPEN
GND
MATRIX
off-set Absorption
WideBand RMS
Timing Current
Spectral RMS
IIL
2.1K LPF
VCA
Wide Band filter
Spectral filter
V.E.
filter adjust
Mode Selector
ST VCO
SAP VCO
Filter
fh trap
400LPF
ST/SAP SW
LPF
Filter
De Em
L+R LPF
PC
ST LPF
SAP BPF.
Sub det
ST VCO
1/2
1/4
ST VCO
Phase det
Loop filter
SAP VCO
1/2
SAP det
SAP LPF
SAP VCO
1/2
Pilot DET
Phase DET
ATT
Noise BPF
Noise det
GND
C1503 1/50
C1502 0.1/50
C1501 22/16
C1504 4.7/50
R1501 1k
C1505 2.2 /50
C1506 0.1 /50
R1502 330k
MY
C1507 0.047
C1508 0.47/50
R1503 120k
C1509 0.1/50
C1521 10/50
R1517 12k
R1508 3.9k
R1509 1.2k
C1519 OPEN
Q1501 OPEN
R1511 1.2k
C1520 OPEN
Q1502 OPEN
R1510 3.9k
L
R
1
2
3
4
5
A
B
C
D
E
F
G
H

4.16 MOVIE/COMMERCIAL ADVANCE SHEMATIC DIAGRAM

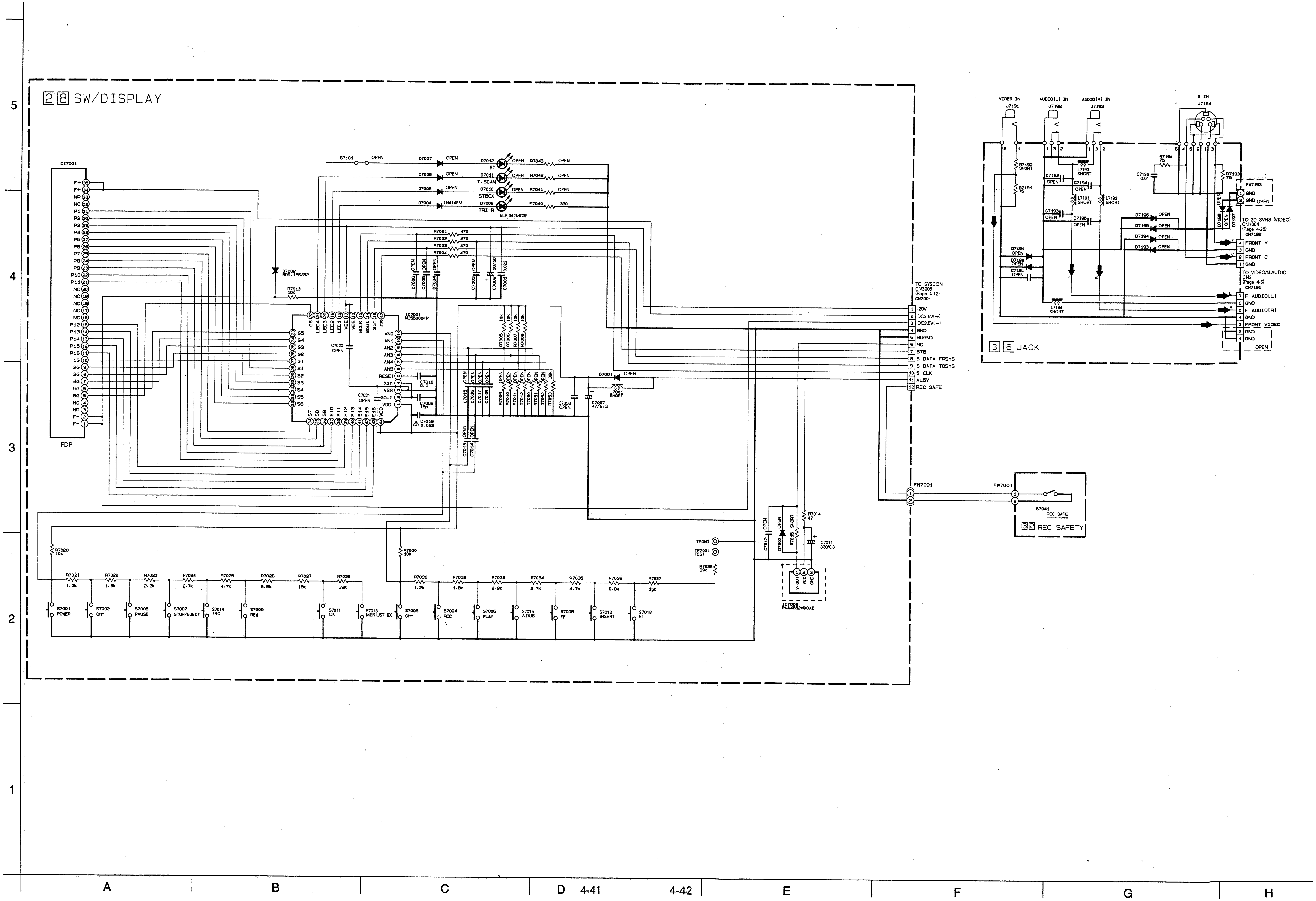

23 MV/CM ADV
TO CONNECTION CN7401 (Page 4-19)
CN7402
CM ADV(H) 10
CA AUDIO 9
MA AUDIO 8
+6dB VIDEO 7
A.DET 6
V.DET 5
EV MASK 4
SW5V 3
GND 2
HEAD SEL 1
Q7406 DTA144WUA
R7434 3.9k
C7422 1/50
R7424 4.7k
R7436 330
Q7405 2SA1576A/QR
C7433 OPEN
R7435 15k
C7435 OPEN
R7425 1.5k
L7401 10μ
C7423 SHORT
R7430 1k
R7431 270
C7428 OPEN
Q7401 2SC4081/QRS
Q7402 2SA1576A/QR
R7437 0Ω
R7426 OPEN
R7428 15k
R7429 1.2k
R7427 2.2k
C7429 OPEN
C7430 0.0056
FL7401
IN
GND
OUT
C7431 0.047
C7434 OPEN
C7432 0.022
R7438 3.3k
R7439 2.2k
B7401 OPEN
C7427 0.1
R7423 OPEN
R7422 10k
R7421 1k
C7421 1/50
L7402 47μ
C7420 39p
C7419 0.1
C7418 0.01
R7443 OPEN
R7442 OPEN
R7441 47k
R7420 OPEN
R7419 OPEN
R7418 OPEN
C7417 0.01
R7417 OPEN
R7416 OPEN
R7440 47k
R7415 OPEN
R7414 SHORT
C7416 0.01
C7415 0.22
C7414 0.1
C7413 OPEN
C7412 OPEN
MY
IC7401 AN3275SB
GND MA/CA
NC
CLAMP
LPF
CLAMP
AMP
BP
BLACK VIDEO DETECT
VIDEO ① LATCH ②
COUNTER
CA
MA
MM3 H-DL
SYNC SEPA
V-SYNC SEPA
MM1 V-DL
MM4 H-WD
MM2 V-WID
H MASK
V MASK
E/V MASK
LPF3
AMP2
NON-AUDIO DETECT
AUDIO ① LATCH ②
MIX
ENV DETECTOR
ENV MASK
VCC
C7401 0.01
C7402 47/16
C7403 0.0027
C7404 0.1/50
C7405 SHORT
R7401 OPEN
R7402 OPEN
R7403 OPEN
C7406 0.0022
C7408 0.1
C7407 0.01
R7404 47k
R7405 82k
R7406 12k
R7407 OPEN
R7408 0Ω
C7426 2.2/50
R7409 0Ω
C7409 OPEN
C7410 OPEN
R7410 39k
C7411 0.01
R7411 OPEN
R7412 OPEN
R7413 OPEN
C7425 OPEN
C7424 0.001
R7433 10k
Q7403 DTC144WUA
R7432 10k
Q7404 DTC144WUA
1
2
3
4
5
A
B
C
D
E
F
G
H

4.19 VSC SCHEMATIC DIAGRAM


72 VSC
TO VIDEO/N.AUDIO
CN2101
(Page 4-5)
CN2501
SW5V
NA_PB
GND
VSC_AUDIO
GND
EXP2
EXP1
VSC_CLK
VSC_DATA
WF1
WF2
LC2501
Q2503
OPEN
R2517
OPEN
R2516
0Ω
C2516
OPEN
L2501
2.2μ
LPF2501
R2501
1K
C2502
0.0056
IN
GND
OUT
C2517
OPEN
R2502
4.7k
R2503
100k
R2514
4.7k
C2515
OPEN
C2503
1/50
R2504
4.7k
R2505
1M
C2504
OPEN
R2515
0Ω
R2506
47k
C2507
22/16
R2507
1k
R2520
100
Q2501
2SD1819A/QRS
Q2502
UN521E
C2501
100
/6.3
C2508
0.01
D2501
1N4148M
R2508
33k
C2509
10/16
C2505
100
/6.3
C2506
0.01
C2510
47/16
R2511
150k
C2512
330p
R2510
100k
C2511
0.0022
R2509
10k
C2514
OPEN
R2518
R2519
R2512
R2513
1k
R2521
4.7k
IC2501
LC85405E
VOUT2
VINB2
VIN2
VREF
VSSA
DAOUT
M
VSS
NC4
FS0
FS1
MB
M9
DSP
SDATA
SCLK
VIN1
VINB1
VOUT1
ADIN
VDDA
ALC
NC3
NC2
NC1
RESB
VDD
EXP2
EXP1
NC0
TST1
TST2
NC5
EX7
EX6
EX5
EX4
EX3
EX2
EX1
VDD
TST2
TST3
NC6
fh
C
VDDA
VSSA
B2502
0Ω
C2513
0.01
B2501
OPEN
C2518
0.001
C2519
0.01
PM7
PM6
PM5
PM4
PM3
PM2
PM1
PM0
VSS
XIN
XOUT
STA1
STA0
SA
SW
PAUSE
R2522
6.8k
CF2501
1
2
3
4
5
A
B
C
D
E
F
G
H

NOTE : For VSC waveforms, please refer to page4-38.

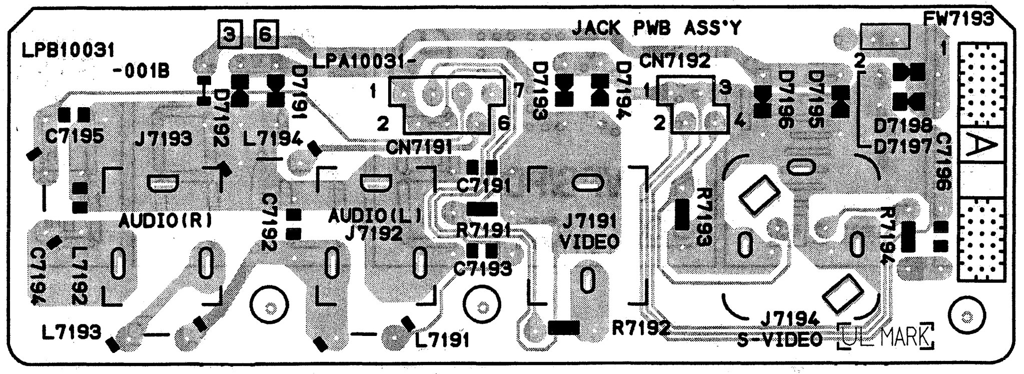
4.20 SW/DISPLAY, REC SAFETY AND JACK SCHEMATIC DIAGRAMS



28 SW/DISPLAY
DI7001
FDP
F+ 35
F+ 34
NP 33
NC 32
P1 31
P2 30
P3 29
P4 28
P5 27
P6 26
P7 25
P8 24
P9 23
P10 22
P11 21
NC 20
NC 19
NC 18
NC 17
NC 16
P12 15
P13 14
P14 13
P15 12
P16 11
1G 10
2G 9
3G 8
4G 7
5G 6
6G 5
NC 4
NP 3
F- 2
F- 1
B7101 OPEN
D7007 OPEN
D7006 OPEN
D7005 OPEN
D7004 1N4148M
D7012 OPEN ET
D7011 T-SCAN
D7010 OPEN STBOX
D7009 TRI-R
SLR-342MC3F
R7043 OPEN
R7042 OPEN
R7041 OPEN
R7040 330
R7001 470
R7002 470
R7003 470
R7004 470
D7002 RD9.1ES/B2
R7013 10k
IC7001 M35500BFP
G6 LED4 LED3 LED2 LED1 VEE VEE SCLK Sout Sin CS
G5 G4 G3 G2 G1 S1 S2 S3 S4 S5 S6
AN0 AN1 AN2 AN3 AN4 AN5 RESET Xin VSS Xout VDD
S7 S8 S9 S10 S11 S12 S13 S14 S15 S16
C7020 OPEN
C7021 OPEN
C7010 0.1
C7009 15p
C7019 0.022
C7006 OPEN
C7005 OPEN
C7004 OPEN
C7003 OPEN
C7002 10/50
C7001 0.022
R7005 10k
R7006 10k
R7007 10k
R7008 10k
C7015 OPEN
C7016 OPEN
C7017 OPEN
C7018 OPEN
R7009 OPEN
R7010 OPEN
R7011 OPEN
R7012 OPEN
R7050 OPEN
R7051 OPEN
R7052 OPEN
R7053 39k
C7013 OPEN
C7014 OPEN
C7008 OPEN
C7007 47/6.3
D7001 OPEN
L7001 SHORT
TO SYSCON
CN3005
(Page 4-12)
CN7001
1 -29V
2 DC3.5V(+)
3 DC3.5V(−)
4 GND
5 BUGND
6 RC
7 STB
8 S DATA FRSYS
9 S DATA TOSYS
10 S CLK
11 AL5V
12 REC. SAFE
R7020 10k
R7021 1.2k
R7022 1.8k
R7023 2.2k
R7024 2.7k
R7025 4.7k
R7026 6.8k
R7027 15k
R7028 39k
S7001 POWER
S7002 CH+
S7005 PAUSE
S7007 STOP/EJECT
S7014 TBC
S7009 REW
S7011 OK
S7013 MENU/ST BX
R7030 10k
R7031 1.2k
R7032 1.8k
R7033 2.2k
R7034 2.7k
R7035 4.7k
R7036 6.8k
R7037 15k
S7003 CH−
S7004 REC
S7006 PLAY
S7015 A.DUB
S7008 FF
S7012 INSERT
S7016 ET
TPGND
TP7001 TEST
R7038 39k
C7012 OPEN
D7003 OPEN
R7015 SHORT
R7014 47
C7011 330/6.3
IC7002 PNA4652M00XB
V.OUT VCC GND
FW7001
FW7001
S7041 REC SAFE
32 REC SAFETY
VIDEO IN J7191
AUDIO(L) IN J7192
AUDIO(R) IN J7193
S IN J7194
R7192 SHORT
R7191 75
C7192 OPEN
C7193 OPEN
L7193 SHORT
C7194 OPEN
C7195 OPEN
L7191 SHORT
L7192 SHORT
C7196 0.01
R7194 75
R7193 75
D7191 OPEN
D7192 OPEN
C7191 OPEN
L7194 SHORT
D7196 OPEN
D7195 OPEN
D7194 OPEN
D7193 OPEN
D7198 OPEN D7197
FW7193
1 GND
2 GND OPEN
TO 3D SVHS (VIDEO)
CN1004
(Page 4-26)
CN7192
4 FRONT Y
3 GND
2 FRONT C
1 GND
TO VIDEO/N.AUDIO
CN2
(Page 4-5)
CN7191
7 F AUDIO(L)
6 GND
5 F AUDIO(R)
4 GND
3 FRONT VIDEO
2 GND
1 GND
OPEN
36 JACK
5
4
3
2
1
A
B
C
D
E
F
G
H

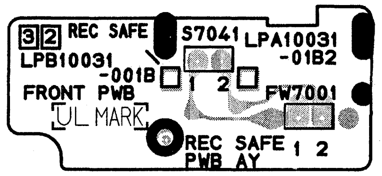
4.21 SW/DISPLAY, REC SAFETY AND JACK CIRCUIT BOARDS

— JACK —



JACK PWB ASS'Y
LPB10031
-001B
LPA10031-
3
6
CN7192
CN7191
FW7193
D7191
D7192
D7193
D7194
D7195
D7196
D7197
D7198
C7191
C7192
C7193
C7194
C7195
C7196
J7191
VIDEO
J7192
AUDIO(L)
J7193
AUDIO(R)
J7194
S-VIDEO
L7191
L7192
L7193
L7194
R7191
R7192
R7193
R7194
A
UL MARK

— REC SAFETY —

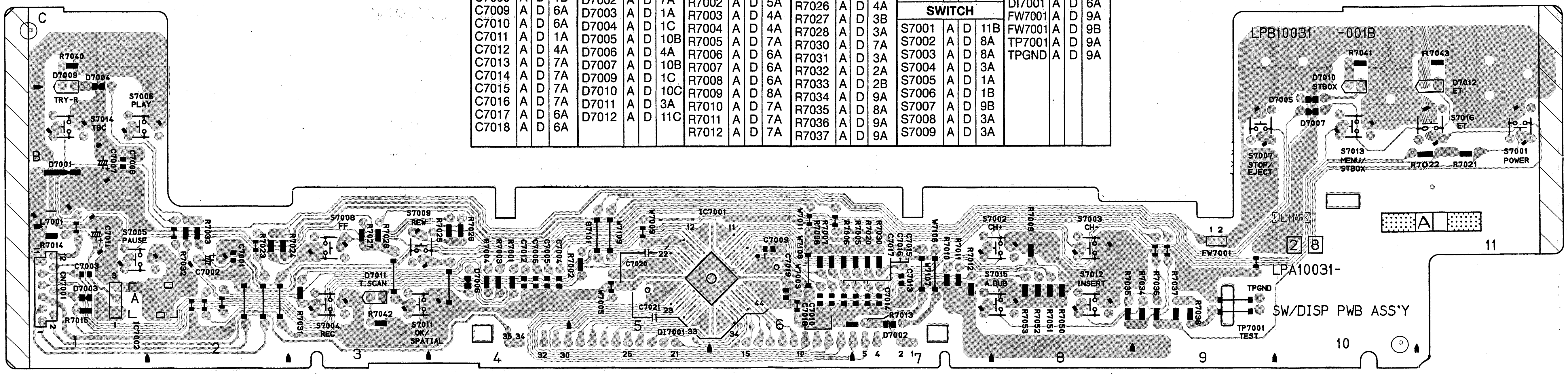


3
2
REC SAFE
LPB10031
-001B
FRONT PWB
S7041
LPA10031
-01B2
FW7001
1
2
UL MARK
REC SAFE
PWB AY
1 2

COMPONENT PARTS LOCATION GUIDE (SW/DISPLAY)

REF.NO.	LOCATION		
CAPACITOR			
C7001	A	D	2A
C7002	A	D	2A
C7003	A	D	1A
C7004	A	D	4A
C7005	A	D	4A
C7006	A	D	4A
C7007	A	D	1B
C7008	A	D	1B
C7009	A	D	6A
C7010	A	D	6A
C7011	A	D	1A
C7012	A	D	4A
C7013	A	D	7A
C7014	A	D	7A
C7015	A	D	7A
C7016	A	D	7A
C7017	A	D	6A
C7018	A	D	6A
C7019	A	D	6A
C7020	A	D	5A
C7021	A	D	6A
CONNECTOR			
CN7001	A	D	1A
DIODE			
D7001	A	D	1B
D7002	A	D	7A
D7003	A	D	1A
D7004	A	D	1C
D7005	A	D	10B
D7006	A	D	4A
D7007	A	D	10B
D7009	A	D	1C
D7010	A	D	10C
D7011	A	D	3A
D7012	A	D	11C
IC			
IC7001	B	C	6A
IC7002	A	D	2A
COIL			
L7001	A	D	1B
RESISTOR			
R7001	A	D	4A
R7002	A	D	5A
R7003	A	D	4A
R7004	A	D	4A
R7005	A	D	7A
R7006	A	D	6A
R7007	A	D	6A
R7008	A	D	6A
R7009	A	D	8A
R7010	A	D	7A
R7011	A	D	7A
R7012	A	D	7A
R7013	A	D	7A
R7014	A	D	1A
R7015	A	D	1A
R7020	A	D	7A
R7021	A	D	11B
R7022	A	D	11B
R7023	A	D	2A
R7024	A	D	2A
R7025	A	D	4B
R7026	A	D	4A
R7027	A	D	3B
R7028	A	D	3A
R7030	A	D	7A
R7031	A	D	3A
R7032	A	D	2A
R7033	A	D	2B
R7034	A	D	9A
R7035	A	D	8A
R7036	A	D	9A
R7037	A	D	9A
R7038	A	D	9A
R7040	A	D	1C
R7041	A	D	10C
R7042	A	D	3A
R7043	A	D	11C
R7050	A	D	8A
R7051	A	D	8A
R7052	A	D	8A
R7053	A	D	8A
SWITCH			
S7001	A	D	11B
S7002	A	D	8A
S7003	A	D	8A
S7004	A	D	3A
S7005	A	D	1A
S7006	A	D	1B
S7007	A	D	9B
S7008	A	D	3A
S7009	A	D	3A
S7011	A	D	3A
S7012	A	D	8A
S7013	A	D	10B
S7014	A	D	1B
S7015	A	D	8A
S7016	A	D	11B
S7041	A	D	9B
OTHER			
DI7001	A	D	6A
FW7001	A	D	9A
FW7001	A	D	9B
TP7001	A	D	9A
TPGND	A	D	9A

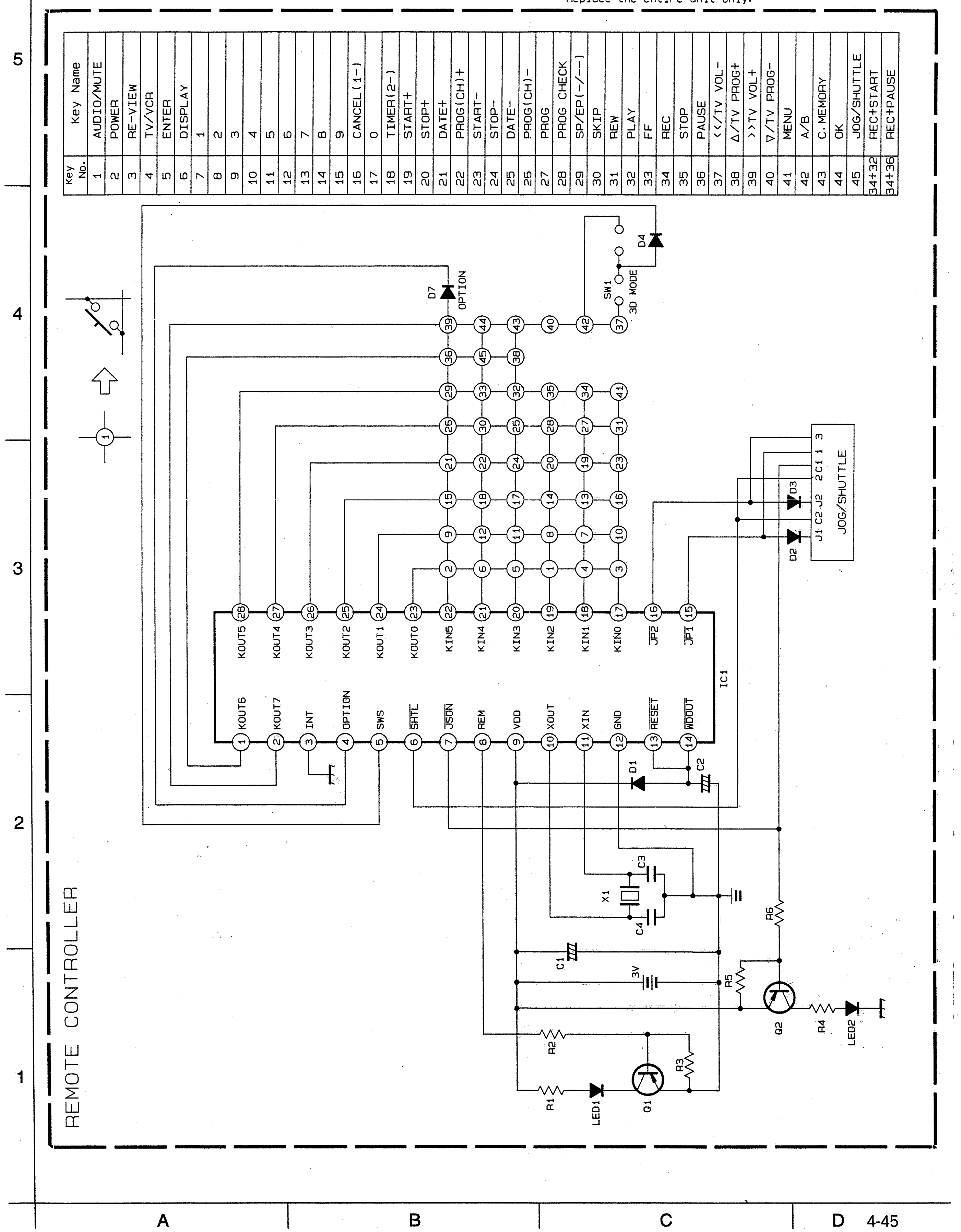
— SW/DISPLAY —



C
B
A
R7040
D7009
D7004
TRY-R
S7006
PLAY
S7014
TBC
D7001
C7007
C7008
L7001
R7014
C7011
C7003
CN7001
D7003
R7015
IC7002
S7005
PAUSE
R7033
R7032
C7002
C7001
R7023
R7024
S7008
FF
R7027
R7028
S7009
REW
R7025
R7026
D7011
T.SCAN
R7042
S7004
REC
R7031
S7011
OK/
SPATIAL
D7006
R7004
R7003
R7001
C7012
C7005
C7006
C7004
R7002
R7701
C7020
C7021
IC7001
DI7001
C7009
C7019
C7010
C7018
R7008
R7007
R7006
R7005
R7030
C7017
C7016
C7015
C7014
C7013
R7013
D7002
R7010
R7011
R7012
S7002
CH+
R7009
S7003
CH-
S7015
A.DUB
S7012
INSERT
R7053
R7052
R7051
R7050
R7035
R7034
R7036
R7037
R7038
TPGND
TP7001
TEST
FW7001
1 2
UL MARK
2
8
A
LPA10031-
SW/DISP PWB ASS'Y
LPB10031 -001B
R7041
R7043
D7010
STBOX
D7012
ET
D7005
D7007
S7007
STOP/
EJECT
S7013
MENU/
STBOX
S7016
ET
R7022
R7021
S7001
POWER
1
2
3
4
5
6
7
8
9
10
11
35
34
32
30
25
21
15
10
5
4
2
1
12
11
22
23
33
34
44

4.22 REMOTE CONTROL SCHEMATIC DIAGRAM

NOTES:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.

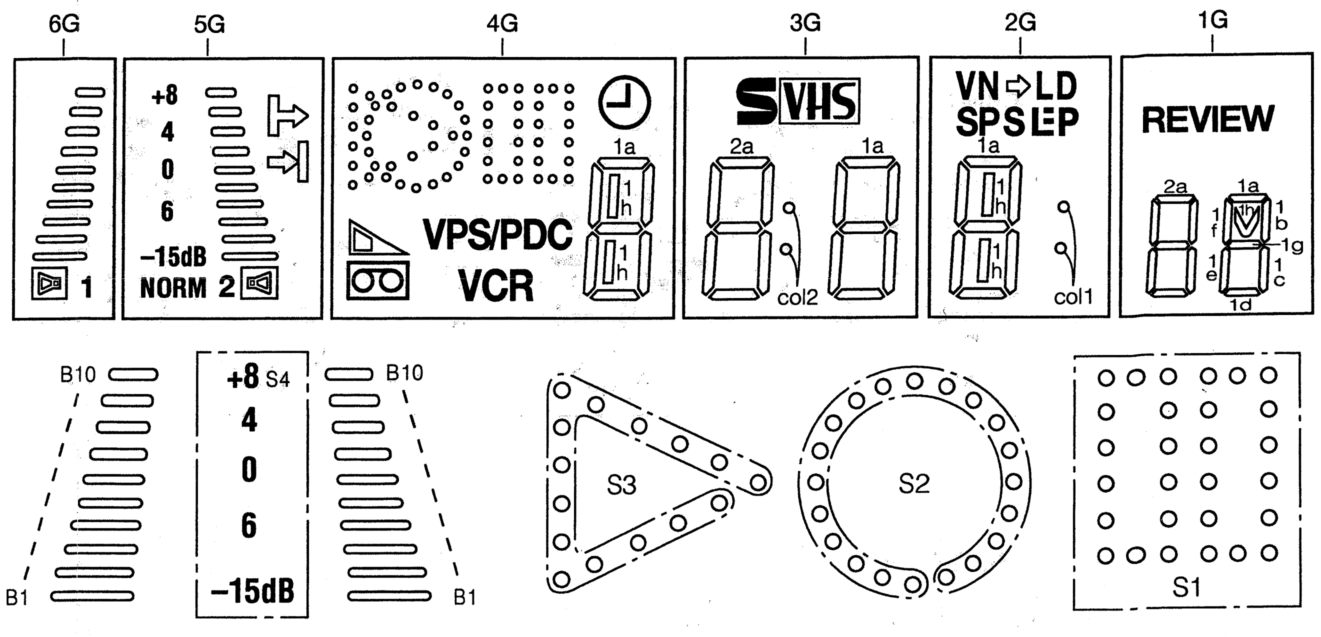


Key No.	Key Name
1	AUDIO/MUTE
2	POWER
3	RE-VIEW
4	TV/VCR
5	ENTER
6	DISPLAY
7	1
8	2
9	3
10	4
11	5
12	6
13	7
14	8
15	9
16	CANCEL(1−)
17	0
18	TIMER(2−)
19	START+
20	STOP+
21	DATE+
22	PROG(CH)+
23	START−
24	STOP−
25	DATE−
26	PROG(CH)−
27	PROG
28	PROG CHECK
29	SP/EP(−/−−)
30	SKIP
31	REW
32	PLAY
33	FF
34	REC
35	STOP
36	PAUSE
37	<</TV VOL−
38	Δ/TV PROG+
39	>>TV VOL+
40	∇/TV PROG−
41	MENU
42	A/B
43	C.MEMORY
44	OK
45	JOG/SHUTTLE
34+32	REC+START
34+36	REC+PAUSE

REMOTE CONTROLLER
5
4
3
2
1
A
B
C
D
IC1
KOUT5
KOUT4
KOUT3
KOUT2
KOUT1
KOUT0
KIN5
KIN4
KIN3
KIN2
KIN1
KIN0
JP2
JP1
KOUT6
KOUT7
INT
OPTION
SWS
SHTL
JSON
REM
VDD
XOUT
XIN
GND
RESET
WDOUT
D7
OPTION
SW1
3D MODE
D4
D3
D2
D1
J1 C2 J2 2C1 1 3
JOG/SHUTTLE
X1
C1
C2
C3
C4
3V
R1
R2
R3
R4
R5
R6
Q1
Q2
LED1
LED2

4.23 FDP GRID ASSIGNMENT AND ANODE CONNECTION

GRID ASSIGNMENT


6G
5G
4G
3G
2G
1G
+8
4
0
6
−15dB
NORM
1
2
VPS/PDC
VCR
SVHS
VN⇨LD
SPSLP
REVIEW
1a
2a
1h
col2
col1
1b
1f
1g
1c
1e
1d
B10
B1
S4
S3
S2
S1

(6G, 5G)

(4G)

ANODE CONNECTION

	6G	5G	4G	3G	2G	1G
P 1	—	⇨	S2	1a	1a	1a
P 2	—	⇥	S1	1b	1b	1b
P 3	—	S4	S3	1f	1f	1f
P 4	—	NORM	VPS/PDC	1g	1g	1g
P 5	1	2	🕒	1c	1c	1c
P 6	🔈	🔈	◺	1e	1e	1e
P 7	B10	B10	📼	1d	1d	1d
P 8	B9	B9	VCR	col2	1h	1h
P 9	B8	B8	1a	2a	col1	2a
P10	B7	B7	1b	2b	⇨	2b
P11	B6	B6	1f	2f	VN	2f
P12	B5	B5	1g	2g	LD	2g
P13	B4	B4	1c	2c	SP	2c
P14	B3	B3	1e	2e	S (SEP)	2e
P15	B2	B2	1d	2d	= (SEP)	2d
P16	B1	B1	1h	SVHS	LP (SEP)	REVIEW

4.24 VOLTAGE CHARTS

<VIDEO/N.AUDIO>

MODE PIN NO.	REC	PLAY
IC1		
1	2.5	2.5
2	2.5	2.5
3	0	0
4	2.3	2.3
5	0	0
6	1.5	0.9
7	-	-
8	-	-
9	2.5	2.5
10	2.4	2.4
11	2.4	2.4
12	5.1	5.1
13	1.9	1.5
14	1.9	1.3
15	2.6	3.1
16	1.5	0.6
17	1.8	1.8
18	2.3	2.1
19	3.0	3.0
20	2.8	2.5
21	2.3	2.3
22	2.3	2.1
23	3.0	3.0
24	2.1	2.1
25	1.4	1.4
26	2.1	2.1
27	0	0
28	5.1	5.1
29	1.2	1.9
30	3.1	3.1
31	2.8	2.8
32	0	0
33	0	0
34	0	0
35	3.2	3.2
36	5.1	5.1
37	5.0	5.0
38	5.1	5.1
39	3.2	3.2
40	5.1	5.1
41	5.1	5.1
42	2.1	2.1
43	5.1	5.1
44	2.6	2.6
45	0	0
46	2.2	2.2
47	0	0
48	0	0
49	0	0
50	0.4	0.4
51	0.6	0.6
52	1.4	2.3
53	3.0	2.8
54	2.0	1.9
55	2.1	2.1
56	2.2	2.8
57	5.1	5.1
58	3.2	3.2
59	3.4	3.4
60	2.1	2.1
61	5.1	5.1
62	4.6	4.6
63	4.5	4.4
64	0	0
65	2.1	2.4
66	5.1	5.1
67	5.1	5.1
68	0	0
69	2.8	2.8
70	2.8	2.8
71	-	-
72	2.3	2.2
73	-	-
74	2.7	1.1
75	0.3	0
76	2.7	2.6
77	0	0
78	2.8	2.8
79	4.1	2.3
80	0	0
81	2.6	2.6
82	1.2	1.2
83	2.6	2.6
84	0	1.5
85	0	0
86	2.5	2.3
87	2.1	2.3
88	2.1	2.3
89	2.5	2.3
90	5.0	5.1
91	0	0
92	0	0
93	0	0
94	0	0
95	2.8	2.8
96	5.1	5.1
97	0	0
98	5.1	5.1
99	0.6	2.7
100	2.5	2.5
IC2		
1	2.8	2.8
2	0	0
3	2.8	2.8
4	5.0	0
5	2.8	2.8
6	5.1	5.1
7	2.1	2.1
8	0	0
Q6		
E	2.7	2.7
C	0	0
B	2.1	2.1
Q9		
E	3.7	3.7
C	0	0
B	3.0	3.0
Q13		
E	3.0	2.3
C	3.0	2.9
B	3.7	2.9
Q14		
E	2.4	2.3
C	5.1	5.1
B	3.0	2.9
Q15		
E	3.0	2.9
C	0	0
B	2.4	2.3
Q16		
E	5.1	5.1
C	5.0	0
B	0	4.9
Q17		
E	0	0
C	0	0
B	3.1	3.1
Q18		
E	0	0
C	0	0
B	3.1	3.1
Q21		
E	0	0
C	0	0
B	4.4	4.4
Q44		
E	5.1	5.1
C	5.1	5.1
B	0	0
Q45		
E	2.6	2.6
C	5.1	5.1
B	3.2	3.2
Q49		
E	2.1	2.1
C	5.1	5.1
B	2.8	2.8
Q101		
E	0	0
C	0	0
B	5.1	5.1
Q152		
E	3.7	2.9
C	0	0
B	4.1	2.3
Q401		
E	11.4	11.5
C	11.4	1.6
B	10.7	11.5
Q402		
E	0	0
C	0	11.5
B	4.8	0
Q403		
E	0	0
C	0	1.6
B	5.0	0
Q404		
E	7.5	1.4
C	0	0
B	7.0	0
Q405		
E	9.5	1.3
C	0	0
B	9.1	1.3
Q2001		
E	-17.7	0
C	0.5	0
B	-16.5	0.7
Q2002		
E	-11.2	0
C	0	0
B	-17.3	0.7
Q2003		
E	5.1	5.1
C	-17.5	5.0
B	4.9	0
Q2051		
E	0	0
C	8.3	0.3
B	0.6	0.3
Q2052		
E	11.4	11.4
C	11.1	2.5
B	10.6	11.3
Q2053		
E	0	0
C	0	11.2
B	4.9	0
Q2054		
E	11.2	2.5
C	11.0	0.3
B	10.4	2.5
Q2055		
E	0	0
C	0	2.8
B	4.8	0
Q2061		
E	0	0
C	6.6	0.3
B	0.3	0.3
Q2062		
E	9.7	0.3
C	9.5	0.3
B	0	0.3
Q2063		
E	0	0
C	0	0.3
B	4.9	0
Q2102		
E	0	0
C	0	0
B	5.0	4.9
Q2103		
E	1.8	1.8
C	5.0	5.0
B	2.4	2.4
CN1		
1	0	0
2	0	0
3	0	0
4	0	0
5	2.1	2.2
6	2.1	2.2
7	2.1	2.2
8	2.1	2.2
9	4.2	0
10	4.1	0
11	4.2	0
12	0	0
13	0	0
CN2		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
CN101		
1	0	0
2	2.5	2.5
3	4.3	4.3
4	2.6	2.6
5	0	4.5
6	0	0
7	0	0
8	0	0
9	0	0.6
10	0	0
11	0	0
12	0	0
13	5.1	5.1
14	5.1	5.1
15	0	0
16	0	0
17	0.4	0.4
18	0.5	0.4
19	2.8	2.8
20	-	-
21	0	0
22	2.7	2.7
23	4.9	4.9
24	0	0
25	5.0	5.1
26	0	0
27	0	0
28	0	0
29	6.7	3.4
30	0	0
CN102		
1	0	0
2	0	0
3	0	0
4	2.9	2.9
5	0	0
6	0	0
7	2.9	2.9
8	2.0	2.1
9	1.4	2.4
10	5.0	5.0
11	2.5	2.4
12	3.8	3.7
13	0	0
14	0	0
15	2.3	2.1
16	0	0
17	4.5	4.5
18	4.3	4.3
19	5.1	5.1
20	5.1	5.1
21	2.4	2.4
22	0	0
23	3.1	3.1
24	0	0
25	0	0
26	2.9	2.9
27	11.5	11.5
28	2.7	2.7
29	0	0
30	2.8	2.8
CN2001		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	1.7	2.5
7	2.0	2.5
CN2002		
1	0	0
2	0	0
CN2101		
1	5.1	5.1
2	0	0
3	0	0
4	2.5	2.5
5	0	0
6	5.1	5.0
7	5.0	4.9
8	0	0
9	0	0

<ON SCREEN>

MODE PIN NO.	REC	PLAY
IC201		
1	0	0
2	2.7	2.7
3	4.9	4.9
4	0	0
5	0	0
6	2.5	2.5
7	2.5	2.5
8	5.1	5.1
9	-	-
10	4.6	4.6
11	1.6	1.6
12	5.1	5.1
13	2.4	2.4
14	0	0
15	2.4	2.4
16	5.0	5.0
17	2.9	2.9
18	3.6	3.6
19	-	-
20	5.1	5.1
21	5.0	5.0
22	-	-
23	5.1	5.1
24	5.1	5.1
Q201		
E	0.7	0.7
C	0	0
B	0	0
Q202		
E	0	0
C	5.0	5.0
B	0.7	0.7
Q207		
E	-	-
C	-	-
B	4.5	4.6
Q208		
E	2.9	3.0
C	0	0
B	2.4	2.3
Q209		
E	2.8	2.8
C	0	0
B	2.1	2.1

<FMA>

MODE PIN NO.	REC	PLAY
IC2201		
1	2.4	2.4
2	0	0
3	2.5	2.5
4	0	0
5	0	0
6	2.5	2.5
7	0	0
8	2.7	2.5
9	1.5	1.5
10	0	0
11	2.5	2.5
12	2.5	2.5
13	2.5	2.4
14	2.0	2.1
15	2.6	0
16	4.6	4.6
17	4.5	4.4
18	0	2.6
19	0	0
20	0	2.0
21	2.0	1.9
22	-	-
23	0	0
24	2.0	2.1
25	2.5	2.3
26	2.5	2.5
27	2.5	2.5
28	0	0
29	1.7	1.7
30	2.7	2.5
31	5.1	5.1
32	0	0
33	2.5	2.5
34	0	0
35	0	0
36	2.3	0
37	2.4	2.5
38	2.6	2.5
39	9.5	9.5
40	0	0.6
41	4.4	4.4
42	0	0
43	0	0
44	0	0
45	4.4	4.4
46	4.4	4.4
47	1.7	1.7
48	1.7	1.7
IC2251		
1	0	2.6
2	4.2	0
3	0.5	0.6
4	0	0
5	0.5	0.6
6	4.2	0
7	4.1	0
8	2.5	2.6
9	0.6	0
10	5.0	5.0
11	3.0	4.0
12	0	0
13	1.8	1.0
14	1.9	2.1
15	0.7	0
16	4.4	0.9
Q2251		
E	4.4	0
C	4.5	0.9
B	0.5	0.4
Q2253		
E	0	0
C	0.5	1.0
B	0	0
Q2256		
E	0	0
C	0.3	0.3
B	0	0
Q2257		
E	0	0
C	0	0
B	4.4	4.4

<SYSCON>

MODE PIN NO.	REC	PLAY
IC3001		
1	0	0
2	0	0
3	0	0
4	5.0	5.1
5	0	0
6	0	0
7	-	-
8	-	-
9	0	0
10	-	-
11	-	-
12	5.0	5.0
13	0	0
14	0	0
15	4.9	4.9
16	4.9	4.9
17	5.1	0
18	0	0
19	0	0
20	0	4.6
21	0	0
22	3.2	0
23	1.3	1.3
24	0	0
25	0	0
26	0	1.1
27	0	0
28	0.8	0.8
29	2.2	0.3
30	4.2	0.3
31	0.4	0.3
32	0.4	0.3
33	0.8	0.8
34	0	0.3
35	0.4	0.3
36	0.3	0.3
37	0	0.3
38	0.3	0.3
39	4.9	0
40	5.0	0
41	4.9	4.9
42	5.0	5.0
43	0	0
44	4.9	4.9
45	4.0	4.0
46	0.3	0
47	0	0
48	0	0
49	0	0
50	4.8	4.8
51	0.6	0.6
52	0	0
53	0	0
54	5.1	5.1
55	0	0
56	-	-
57	1.0	1.0
58	-	5.0
59	4.6	4.6
60	-	-
61	4.4	4.6
62	4.9	5.0
63	5.0	5.0
64	4.9	5.0
65	4.0	4.1
66	0	0
67	3.2	0
68	0	0
69	5.0	5.0
70	5.0	5.0
71	2.5	2.5
72	5.0	5.0
73	5.0	5.0
74	5.0	5.0
75	5.0	5.0
76	5.0	5.0
77	5.1	5.1
78	0	0
79	2.5	2.5
80	0	0
IC3002		
1	0	0
2	12.2	12.2
3	0	4.9
4	-	-
5	0	0
6	12.2	12.2
7	0	4.9
8	12.2	12.2
9	0	0
IC3003		
1	5.0	5.0
2	5.0	5.0
3	0	0
IC3004		
1	0	0
2	0	0
3	0	0
4	0	0
5	4.9	5.0
6	5.0	5.0
7	0	0
8	5.0	5.0
IC3301		
1	0	2.0
2	0	1.5
3	5.0	5.1
4	5.0	5.0
5	0	0
6	0	0
7	-	-
8	4.9	5.0
9	0	0
10	-	-
11	-	-
12	4.5	4.5
13	0	0
14	5.0	5.0
15	5.0	5.0
16	0	0
17.	0	0
18	0	0
19	4.6	4.5
20	4.7	4.7
21	4.5	4.5
22	-	-
23	0	-
24	3.2	0
25	4.5	4.4
26	0	0
27	0	0
28	0	0
29	2.2	-
30	0.7	0.7
31	0	0
32	5.0	5.0
33	0	0
34	0.3	0.3
35	0	0
36	0	0
37	0	0
38	0	0
39	0.8	0.8
40	0.4	0.4
41	0.6	0.4
42	4.3	4.3
43	4.9	0
44	0	5.0
45	0	0
46	4.9	4.9
47	0	5.0
48	0	0
49	0	0
50	0	0
51	0	0
52	5.1	1.9
53	0	0
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	-	-
60	0	0
61	0	0
62	0	0
63	5.0	5.0
64	0	0
65	0	0
66	0	0
67	5.0	5.0
68	5.0	5.1
69	0	0
70	5.0	5.0
71	2.6	2.6
72	5.0	5.0
73	0	0
74	1.8	1.8
75	1.5	1.6
76	2.5	2.5
77	0	0
78	0	0
79	0	0
80	4.3	4.3
IC3302		
1	0	0
2	12.3	12.3
3	0	0
4	0	0
5	0	0
6	12.3	12.3
7	4.9	5.0
8	3.6	3.6
9	0	0
IC7201		
1	0	0
2	2.9	2.9
3	3.3	3.3
4	4.5	4.5
5	0	0
6	0	0
7	0	0
8	4.7	4.8
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	1.5
16	0	2.5
17	0	1.5
18	0	1.4
19	5.1	5.1
20	5.1	5.1
21	5.0	5.1
22	1.0	1.8
23	1.2	1.0
24	5.1	5.1
25	0.5	0.6
26	0.5	0.6
27	0.5	0.5
28	0.5	0.5
29	0.5	0.3
30	1.0	1.0
31	0.6	0.5
32	0.7	0.7
33	0	0
34	0	0
35	0	0
36	0	0
Q3001		
E	0	0
C	4.4	4.6
B	-	-
Q3002		
E	0	0
C	4.7	4.8
B	-	-
Q3003		
E	0	0
C	0	0
B	0.6	0.7
Q3005		
E	0	0
C	12.2	12.2
B	0	0
Q3006		
E	0	0
C	0	0
B	0	0
Q3007		
E	5.2	5.2
C	0	0
B	5.2	5.2
CN3001		
1	0	0
2	2.6	2.6
3	2.5	2.5
4	5.0	5.1
5	0	0
6	5.0	5.0
7	-	-
8	12.2	12.2
CN3003		
1	0.3	0.3
2	0.3	0.3
CN3004		
1	5.0	5.0
2	4.9	5.0
3	0	0
4	0	0
CN3005		
1	5.1	5.1
2	5.1	5.1
3	4.9	4.8
4	-	-
5	-	-
6	-	-
7	5.0	5.0
8	0	0
9	0	0
10	-20.5	-20.5
11	-16.8	-16.7
12	-29.5	-29.4
CN3301		
1	0	0
2	0	0
3	0	0
4	5.1	5.1
5	0	0
6	0	0
CN7201		
1	0	0
2	6.3	6.3
3	5.1	5.1

<SERVO>

MODE PIN NO.	REC	PLAY
IC4001		
1	0	0
2	0.3	0.4
3	2.4	2.4
4	0	0
5	3.2	0
6	5.1	1.9
7	1.6	1.6
8	3.0	3.0
9	5.1	5.1
10	2.5	2.5
11	2.6	2.6
12	2.5	2.5
13	1.7	2.5
14	2.8	2.5
15	2.5	2.6
16	0	0
17	2.4	2.4
18	0	0
19	0.4	0.5
20	0	2.6
21	2.5	2.5
22	1.6	1.7
23	5.0	5.1
24	-	-
IC4101		
1	2.0	2.1
2	2.5	2.5
3	2.5	2.5
4	5.0	5.1
5	5.0	5.0
6	5.1	5.0
7	0	0
8	3.1	3.1
9	3.1	3.1
10	2.9	2.9
11	0	0
12	2.5	2.5
13	2.4	2.4
14	2.5	2.5
IC4102		
3	0	0
5	5.0	5.0
IC4103		
1	2.5	2.5
2	2.5	2.5
3	2.4	2.5
4	2.5	2.5
5	5.1	5.1
6	0.4	0.4
7	0	0
8	1.0	1.0
9	2.4	2.5
10	2.5	2.5
11	2.5	2.5
12	5.1	5.1
13	0	0
14	5.0	5.0
Q4001		
E	0	0
C	0	0.6
B	4.6	0
Q4101		
E	0	0
C	5.1	5.0
B	0	0
Q4102		
E	0	0
C	5.0	5.1
B	0.4	0.4
CN4001		
1	12.2	12.2
2	0	0
3	1.5	1.5
4	1.6	1.6

<SWITCHING REGULATOR>

MODE PIN NO.	REC	PLAY
IC5301		
1	5.8	5.8
2	5.1	5.1
3	4.7	4.7
4	0	0
5	12.1	12.0
6	11.4	11.4
7	12.2	12.2
8	12.1	12.2
9	1.3	1.3
10	10.9	10.9
Q5101		
S	0	0
D	100.6	99.7

MODE PIN NO.	REC	PLAY
G	0	0
Q5102		
E	0	0
C	0.6	0.7
B	0.4	0.5
Q5317		
E	5.1	5.1
C	5.8	5.8
B	5.8	5.8
Q5318		
E	0	0
C	5.7	5.8
B	0.6	0.6
Q5451		
E	-	-
C	-	-
B	-	-
Q5452		
E	-	-
C	-	-
B	-	-

<TUNER>

MODE PIN NO.	REC	PLAY
Q6001		
E	9.0	9.0
C	11.3	11.3
B	9.6	9.6
Q6031		
E	0	0
C	0	0
B	4.0	4.1
CN6701		
1	-	-
2	-	-
3	-	-
4	4.2	4.2
5	0	0
6	0	0
7	9.0	9.0
8	0	0
9	1.7	1.7

<CONNECTION>

MODE PIN NO.	REC	PLAY
CN7401		
1	0	0
2	0	0
3	5.0	5.0
4	1.3	1.3
5	4.9	4.9
6	4.9	4.9
7	2.4	2.4
8	1.9	1.8
9	2.5	2.5
10	1.0	1.0

<3D SVHS(VIDEO,3D/TBC)>

MODE PIN NO.	REC	PLAY
IC1001		
1	3.0	3.0
2	0.3	4.4
3	2.4	2.4
4	1.9	1.9
5	2.9	2.9
6	2.8	2.8
7	2.4	2.4
8	3.8	3.8
9	2.4	2.4
10	2.9	2.9
11	2.8	2.8
12	2.4	2.4
13	4.4	4.2
14	4.6	4.4
15	2.7	2.7
16	2.9	2.8
17	4.2	4.2
18	3.2	2.2
19	0	0
20	0	0
21	2.4	2.4
22	2.8	2.8
23	2.4	2.4
24	0	0
25	3.5	3.5
26	2.1	2.1
27	2.9	2.8
28	2.9	2.9
29	2.9	2.8
30	0	0
31	2.9	2.8
32	0	0
33	2.8	2.8
34	5.1	5.1
35	2.3	2.8
36	1.9	1.9
37	3.1	3.2
38	3.0	2.9
39	2.5	2.5
40	2.8	2.8
41	2.9	2.9
42	2.9	2.8
43	3.1	3.1
44	2.4	2.2
45	2.4	2.5
46	2.8	2.9
47	2.8	2.2
48	2.9	2.8
49	5.1	5.1
50	2.8	2.8
51	2.9	2.9
52	4.2	2.8
53	2.8	2.1
54	2.7	3.6
55	0	0
56	2.5	2.4
IC1002		
1	2.1	2.1
2	0.3	4.5
3	3.5	3.5
4	3.5	3.5
5	5.1	5.1
6	2.3	2.3
7	2.1	2.1
8	5.1	5.1
9	1.5	1.5
10	3.0	2.9
11	3.0	2.9
12	3.0	2.9
13	0	0
14	2.9	2.9
15	2.9	2.9
16	2.1	2.0
17	2.1	2.1
18	2.1	2.1
IC1003		
1	1.9	1.9
2	0	0
3	1.7	1.6
4	0	0
5	1.7	1.7
6	5.1	5.1
7	1.2	1.2
8	0	0
IC1005		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	2.9	2.8
13	2.9	2.8
14	0	0
15	0	0
16	5.1	5.1
IC1401		
1	0	0
2	1.5	1.5
3	0	0
4	3.1	3.1
5	0	0
6	2.6	2.6
7	4.6	4.5
8	4.3	4.3
9	0	0
10	2.5	2.5
11	0	0
12	0.6	0.6
13	0	0
14	0	-
15	0.8	-
16	0.8	-
17	0	-
18	0	-
19	1.0	0
20	1.1	-
21	0	0
22	2.3	-
23	1.8	-
24	3.1	3.1
25	0	0
26	2.0	0.9
27	2.1	0.9
28	1.0	1.0
29	1.0	0
30	1.4	0
31	1.4	1.5
32	0.8	1.5
33	1.0	1.6
34	3.1	3.1
35	0	0
36	1.4	1.4
37	1.3	1.3
38	3.1	3.1
39	3.1	3.1
40	2.0	0.9
41	2.1	0.9
42	0	0
43	3.1	3.1
44	0	0
45	1.1	1.0
46	1.4	1.9
47	0	1.9
48	1.4	0.9
49	0.8	1.5
50	1.0	1.6
51	1.1	1.5
52	0.8	1.6
53	0.8	1.6
54	1.6	1.7
55	1.5	1.6
56	1.4	1.6
57	0	0
58	0.9	1.3
59	2.3	1.2
60	1.9	0.8
61	3.1	3.1
62	0	0
63	0	0
64	3.1	3.1
65	0	0
66	0	0
67	0	0
68	0	0
69	0.3	0.3
70	0	0
71	0	3.1
72	3.1	3.1
73	0.4	0.4
74	0	0
75	0.6	0.6
76	1.9	1.9
77	1.3	1.3
78	1.3	1.3
79	3.1	3.1
80	0	0
81	2.0	2.0
82	1.4	1.4
83	2.4	2.4
84	2.4	2.4
85	0.6	0.6
86	0.6	0.6
87	1.5	1.5
88	3.1	3.1
89	0	0
90	1.6	1.6
91	1.6	1.6
92	1.8	1.8
93	3.1	3.1
94	0	0
95	0.6	0.6
96	1.5	1.5
97	1.3	1.3
98	1.3	1.3
99	0	0
100	3.1	3.1
IC1402		
1	1.1	1.5
2	0.8	1.5
3	1.3	1.5
4	1.5	0.9
5	1.4	1.6
6	0	0
7	0	0
8	3.1	3.1
9	1.3	1.3
10	3.1	3.1
11	1.0	1.0
12	1.0	0.8
13	2.1	0.9
14	2.1	0.8
15	1.9	1.5
16	2.3	1.1
17	0.9	1.2
18	1.1	1.3
19	3.1	3.1
20	1.4	1.4
21	3.1	3.1
22	0	0
23	0	0
24	1.4	1.6
25	1.6	1.2
26	1.6	1.4
27	0.7	1.5
28	0.8	1.2
IC1403		
1	1.0	0.9
2	0.8	1.0
3	1.5	1.5
4	1.5	1.5
5	1.4	1.8
6	0	0
7	0	0
8	3.1	3.1
9	1.3	1.3
10	3.1	3.1
11	1.0	0.9
12	1.0	0.9
13	2.1	0.9
14	2.0	0.9
15	1.9	1.6
16	2.3	1.1
17	0.8	1.1
18	1.1	1.3
19	3.1	3.1
20	1.4	1.4
21	3.1	3.1
22	0	0
23	0	0
24	1.3	1.6
25	1.7	1.1
26	1.6	1.2
27	0.8	1.1
28	0.8	-
Q1003		
E	0	0
C	0	5.1
B	3.6	3.6
Q1008		
E	0	0
C	0	0
B	0	0
Q1009		
E	0	0
C	0	0
B	4.9	4.9
Q1010		
E	0	0
C	0	0
B	4.9	4.9
Q1011		
E	3.0	3.0
C	0	0
B	2.3	2.4
Q1013		
E	2.8	2.8
C	0	0
B	2.1	2.2
Q1016		
E	0	0
C	0	0
B	5.0	5.0
Q1021		
E	3.1	3.1
C	0	0
B	2.5	2.5
Q1022		
E	0	0
C	4.2	0
B	0.3	4.4
Q1401		
E	3.1	3.2
C	5.1	5.1
B	3.9	3.8
Q1402		
E	1.1	1.1
C	3.5	3.5
B	1.7	1.7
Q1403		
E	2.9	2.9
C	5.1	5.1
B	3.5	3.5
Q1404		
E	0	0
C	5.1	5.1
B	0	2.0
Q1405		
E	1.7	1.7
C	5.1	5.1
B	2.3	2.3
Q1406		
E	1.2	1.3
C	0	0
B	0.6	0.7
Q1407		
E	1.7	1.7
C	0	0
B	1.1	1.1
Q1408		
E	1.1	1.1
C	0	0
B	0.4	0.4
Q1409		
E	1.2	1.2
C	0	0.
B	0.6	0.6
Q1410		
E	1.1	1.1
C	3.1	3.0
B	1.7	1.8
Q1411		
E	3.1	3.1
C	1.3	1.3
B	3.1	3.1
Q1412		
E	0	0
C	4.0	4.0
B	0	0
Q1413		
E	0	0
C	0	0
B	4.0	4.0
Q1414		
E	0	0
C	0	0
B	4.0	4.0
Q1416		
E	0	0
C	0	0.7
B	4.2	0
Q1417		
E	-	-
C	-	-
B	-	-
Q1418		
E	-	-
C	-	-
B	-	-
Q1419		
E	-	-
C	-	-
B	-	-
CN1001		
1	0	0
2	2.5	2.5
3	4.3	4.3
4	2.6	2.6
5	0	4.5
6	0	0
7	0	0
8	0	0
9	0	0.6
10	0	0
11	0	0
12	0	0
13	5.1	5.1
14	5.1	5.1
15	0	0
16	0	0
17	0.4	0.4
18	0.5	0.4
19	2.8	2.8
20	-	-
21	0	0
22	2.7	2.7
23	4.9	4.9
24	0	0
25	5.0	5.1
26	0	0
27	0	0
28	0	0
29	6.7	3.4
30	0	0
CN1002		
1	0	0
2	0	0
3	0	0
4	2.9	2.9
5	0	0
6	0	0
7	2.9	2.9
8	2.0	2.1
9	1.4	2.4
10	5.0	5.0
11	2.5	2.4
12	3.8	3.7
13	0	0
14	0	0
15	2.3	2.1
16	0	0
17	4.5	4.5
18	4.3	4.3
19	5.1	5.1
20	5.1	5.1
21	2.4	2.4
22	0	0
23	3.1	3.1
24	0	0
25	0	0
26	2.9	2.9
27	11.5	11.5
28	2.7	2.7
29	0	0
30	2.8	2.8
CN1004		
1	0	0
2	0	0
3	0.4	0.4
4	0	0

<DEMODULATOR>

MODE PIN NO.	REC	PLAY
IC1501		
1	9.0	9.0
2	4.5	4.5
3	4.5	4.5
4	4.5	4.5
5	4.5	4.5
6	4.5	4.5
7	4.4	4.4
8	4.3	4.3
9	5.5	5.5
10	1.8	1.8
11	3.1	3.2
12	4.4	4.5
13	-	-
14	0	0
15	-	-
16	-	-
17	0	0
18	4.5	4.5
19	4.6	4.6
20	4.6	4.6
21	1.2	1.2
22	5.2	5.2
23	5.2	5.2
24	4.4	4.4
25	-	-
26	4.5	4.5
27	4.5	4.5
28	3.6	3.6
CN1501		
1	-	-
2	-	-
3	-	-
4	4.2	4.2
5	0	0
6	0	0
7	9.0	9.0
8	0	0
9	1.7	1.7

<VSC>

MODE PIN NO.	REC	PLAY
IC2501		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	-	-
11	-	-
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	5.1	5.1
19	5.1	5.1
20	5.1	5.1
21	0	0
22	0	0
23	0	0
24	5.1	5.1
25	-	-
26	-	-
27	-	-
28	-	-
29	-	-
30	-	-
31	-	-
32	0	0
33	0	0
34	0	0
35	0	0
36	-	-
37	-	-
38	0	0
39	0	0
40	0	0
41	0	0
42	-	-
43	2.6	2.6
44	0	0
45	2.6	2.6
46	2.6	2.6
47	2.5	2.5
48	2.6	2.6
49	2.6	2.6
50	2.6	2.6
51	2.6	2.6
52	2.6	2.6
53	5.1	5.1
54	0	0
55	0	0
56	0	0
57	0	0
58	5.1	5.1
59	5.1	5.1
60	5.1	5.1
61	0	5.1
62	0	0
63	0	0
64	0	0
Q2501		
E	0	0
C	0	0
B	0	0
Q2502		
E	0	0
C	0	0
B	5.1	5.1
CN2501		
1	5.1	5.1
2	0	0
3	0	0
4	2.5	2.5
5	0	0
6	5.1	5.0
7	5.0	4.9
8	0	0
9	0	0

<MV/CM ADV>

MODE PIN NO.	REC	PLAY
IC7401		
1	5.0	5.0
2	1.1	1.2
3	2.9	3.0
4	2.9	2.9
5	2.2	2.2
6	1.2	1.2
7	3.0	3.1
8	0	0
9	1.3	1.3
10	2.9	2.9
11	4.9	4.9
12	1.3	1.3
13	1.3	1.3
14	1.1	1.1
15	2.8	2.8
16	1.3	1.3
17	2.8	2.8
18	0.6	0.6
19	2.9	2.9
20	1.7	1.7
21	3.2	3.2
22	1.7	1.7
23	0	0
24	1.7	1.7
25	4.9	4.9
26	0	0
27	2.3	2.3
28	2.9	2.9
29	2.5	2.4
30	3.0	3.0
31	2.8	2.8
32	2.3	2.3
33	2.8	2.8
34	2.9	2.9
35	1.0	1.0
36	0	0
Q7401		
E	1.2	1.2
C	4.1	4.1
B	1.8	1.8
Q7402		
E	4.7	4.7
C	2.8	2.7
B	4.1	4.1
Q7403		
E	0	0
C	4.2	4.2
B	1.0	1.0
Q7404		
E	0	0
C	0	0
B	4.2	4.2
Q7405		
E	5.0	5.0
C	0	0
B	5.0	5.0
Q7406		
E	5.0	5.0
C	5.0	5.0
B	1.0	1.0
CN7402		
1	0	0
2	0	0
3	5.0	5.0
4	1.3	1.3
5	4.9	4.9
6	4.9	4.9
7	2.4	2.4
8	1.9	1.8
9	2.5	2.5
10	1.0	1.0

<SW/DISPLAY>

MODE PIN NO.	REC	PLAY
IC7001		
1	5.1	5.1
2	2.2	2.2
3	0	0
4	2.1	2.2
5	5.1	5.1
6	4.1	4.1
7	5.1	5.1
8	5.1	5.1
9	5.1	5.1
10	5.1	5.1
11	5.1	5.1
12	4.4	4.3
13	-	-
14	-	-
15	4.9	4.9
16	-29.4	-29.4
17	-29.5	-29.4
18	-29.2	-29.2
19	-29.3	-29.2
20	-29.3	-29.2
21	-24.9	-24.6
22	-	-
23	-	-
24	-	-
25	-	-
26	-	-
27	-	-
28	-	-
29	-	-
30	-	-
31	-	-
32	-	-
33	-	-
34	-	-
35	-	-
36	-	-
37	-	-
38	-	-
39	-	-
40	-	-
41	-	-
42	-	-
43	-	-
44	5.1	5.1
IC7002		
1	5.0	5.0
2	5.0	5.0
3	0	0
CN7001		
1	-29.5	-29.4
2	-16.8	-16.7
3	-20.5	-20.5
4	0	0
5	0	0
6	5.0	5.0
7	-	-
8	-	-
9	-	-
10	4.9	4.8
11	5.1	5.1
12	5.1	5.1
FW7001		
1	5.1	5.1
2	0	0

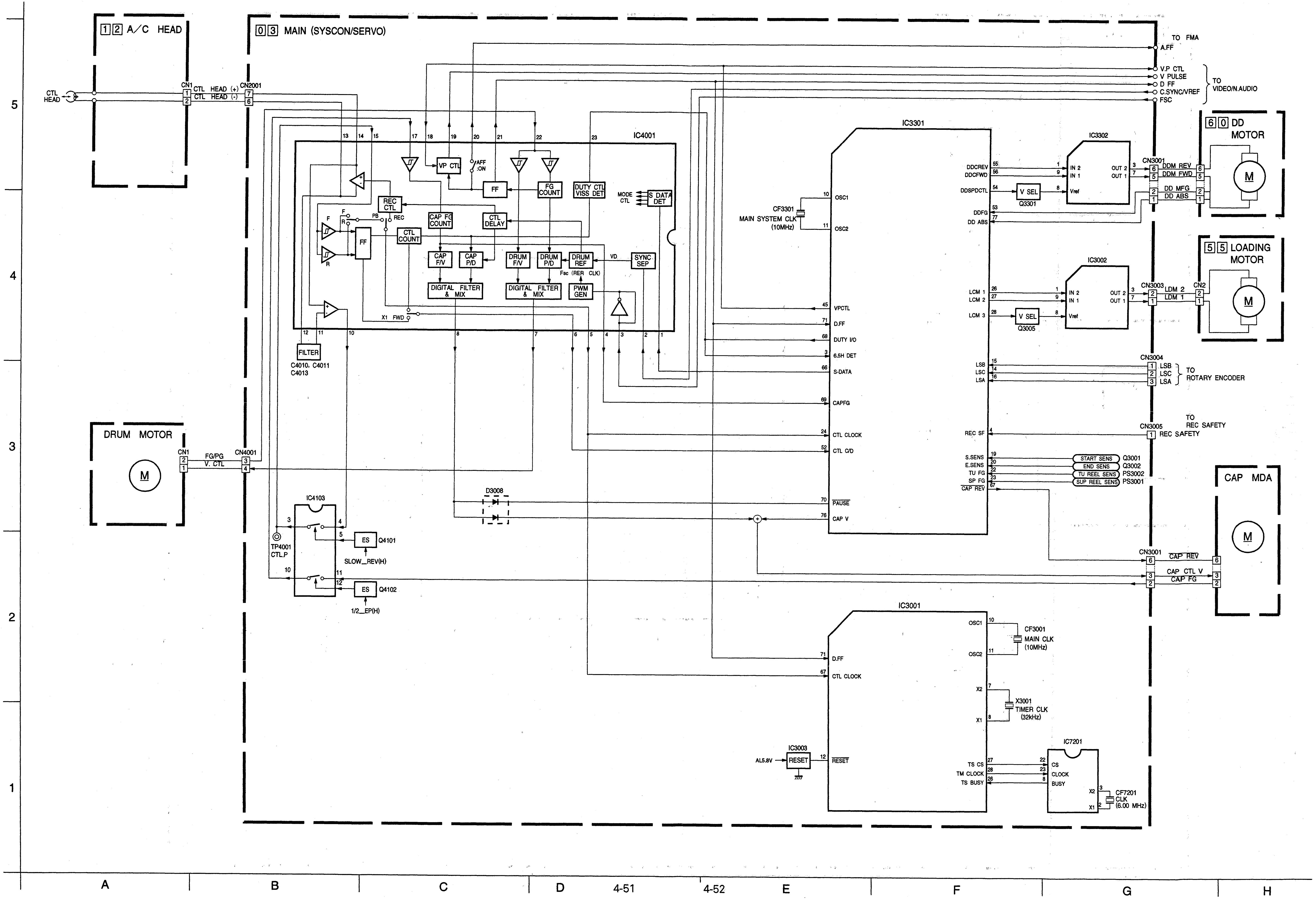
<JACK>

MODE PIN NO.	REC	PLAY
CN7191		
1	-	-
2	-	-
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
CN7192		
1	0	0
2	0.4	0.4
3	0	0
4	0	0

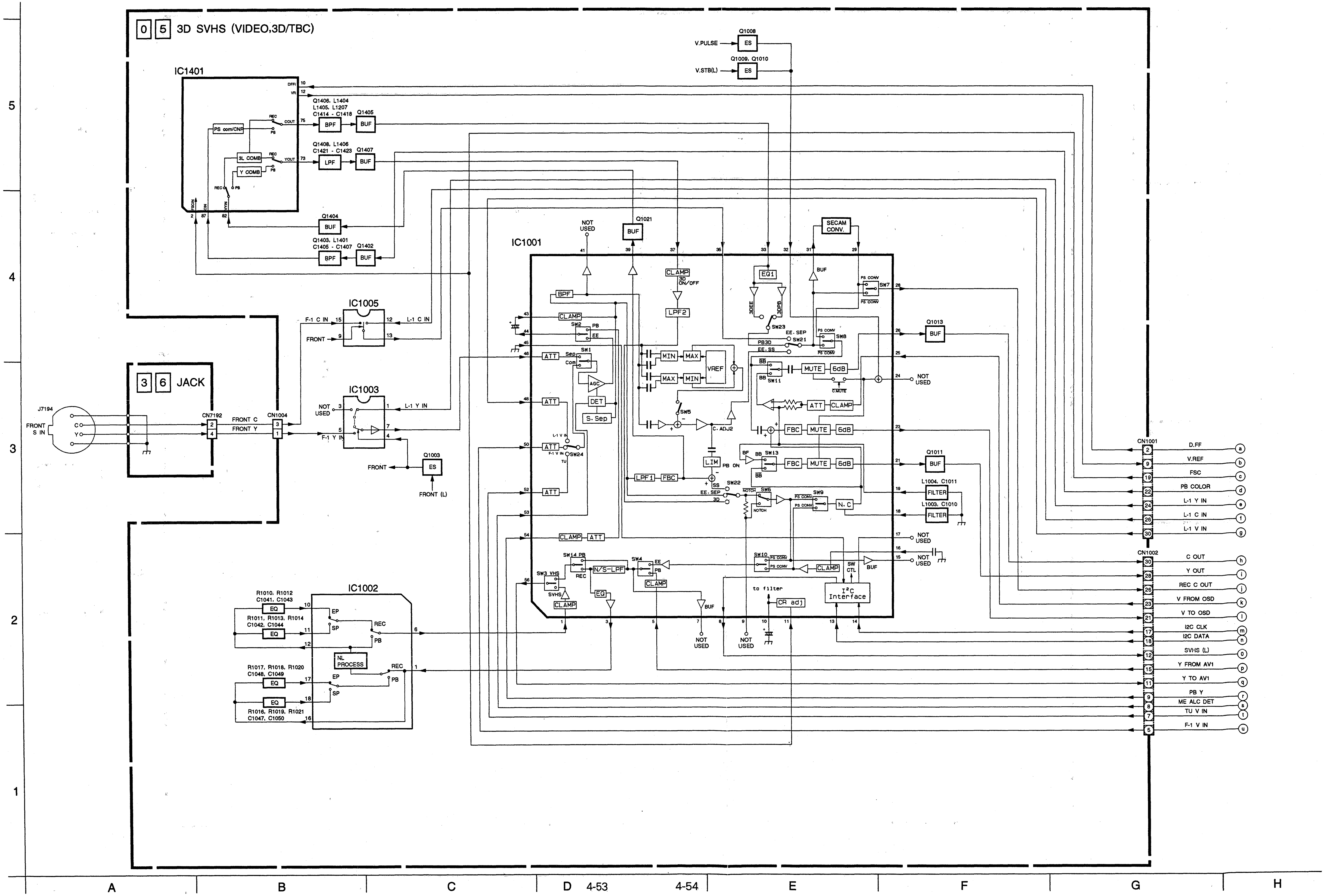
<JLIP>

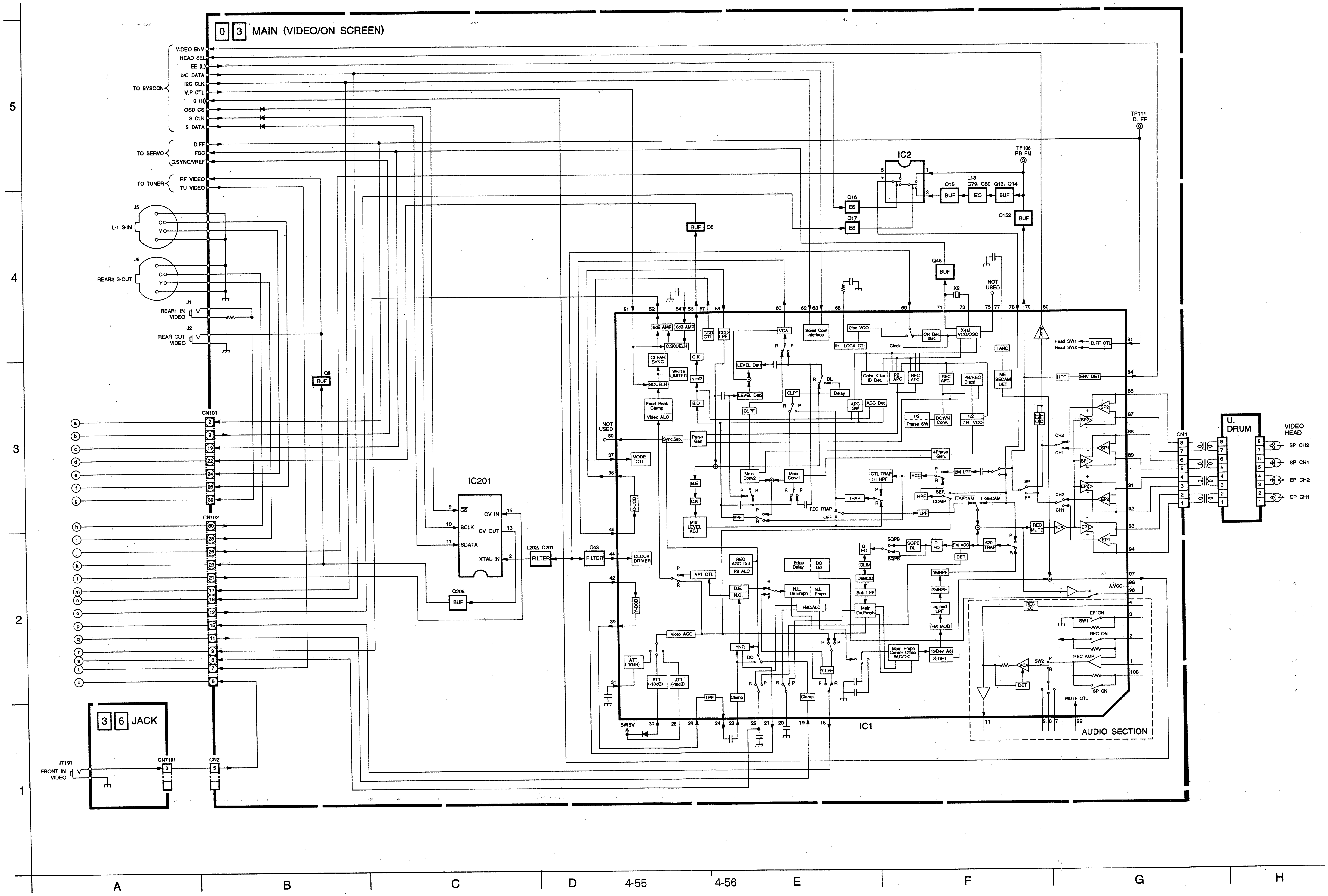
MODE PIN NO.	REC	PLAY
CN7202		
1	0	0
2	6.3	6.3
3	5.1	5.1

4.25 SYSTEM CONTROL/SERVO BLOCK DIAGRAM

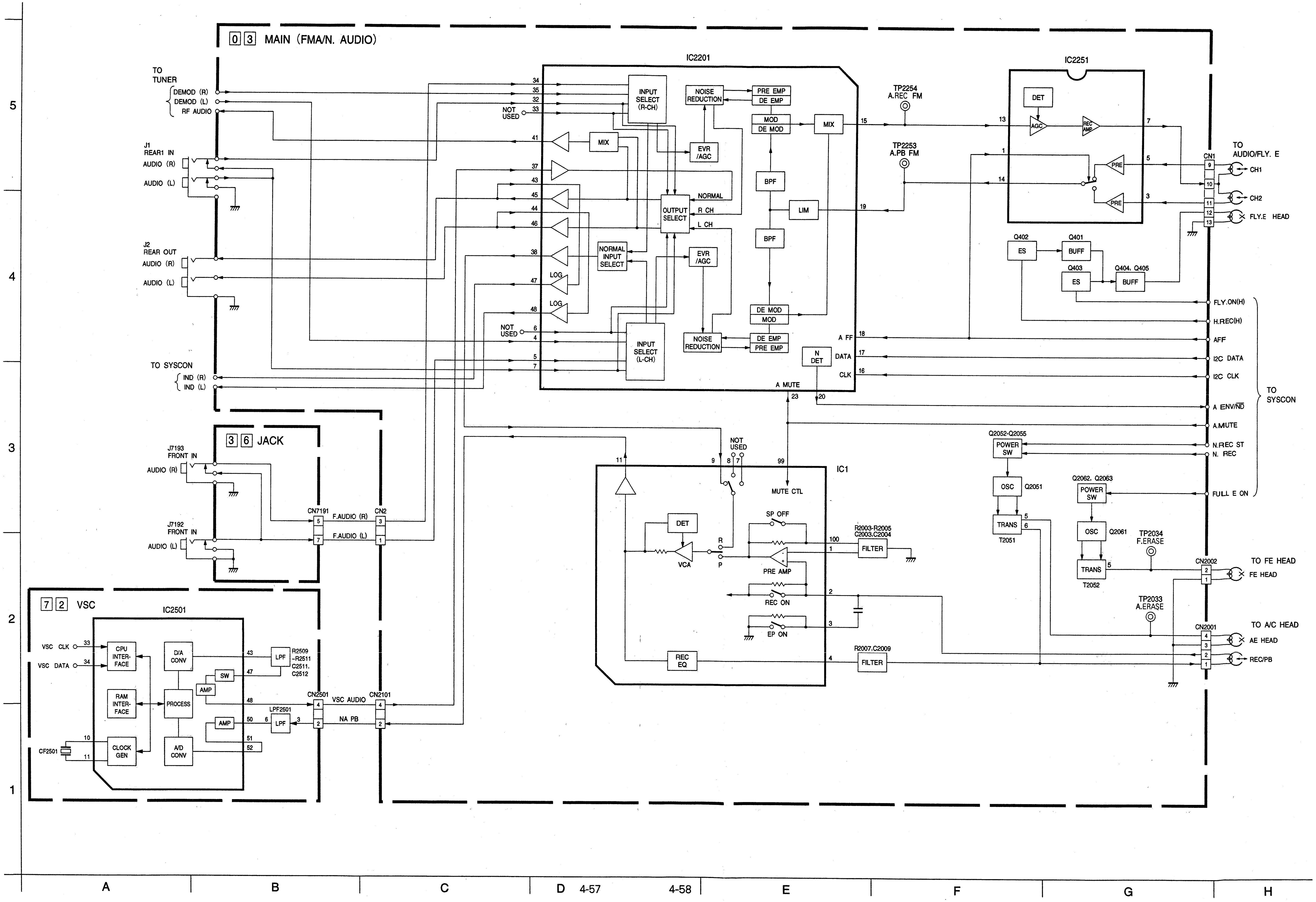

12 A/C HEAD
03 MAIN (SYSCON/SERVO)
CTL HEAD
CN1
CTL HEAD (+)
CTL HEAD (-)
CN2001
IC4001
REC CTL
CTL COUNT
CAP FG COUNT
CTL DELAY
VP CTL
AFF :ON
FF
FG COUNT
DUTY CTL VISS DET
MODE CTL
S DATA DET
CAP F/V
CAP P/D
DRUM F/V
DRUM P/D
DRUM REF
Fsc (REF CLK)
VD
SYNC SEP
DIGITAL FILTER & MIX
PWM GEN
X1 FWD
PB
REC
FILTER
C4010, C4011
C4013
DRUM MOTOR
FG/PG
V. CTL
CN4001
IC4103
ES
Q4101
SLOW_REV(H)
Q4102
1/2_EP(H)
TP4001
CTL.P
D3008
IC3301
CF3301
MAIN SYSTEM CLK
(10MHz)
OSC1
OSC2
VPCTL
D.FF
DUTY I/O
6.5H DET
S-DATA
CAPFG
CTL CLOCK
CTL C/D
PAUSE
CAP V
DDCREV
DDCFWD
DDSPDCTL
DDFG
DD ABS
LCM 1
LCM 2
LCM 3
LSB
LSC
LSA
REC SF
S.SENS
E.SENS
TU FG
SP FG
CAP REV
V SEL
Q3301
Q3005
IC3302
IC3002
IN 2
IN 1
Vref
OUT 2
OUT 1
TO FMA
A.FF
V.P CTL
V PULSE
D FF
C.SYNC/VREF
FSC
TO VIDEO/N.AUDIO
60 DD MOTOR
CN3001
DDM REV
DDM FWD
DD MFG
DD ABS
55 LOADING MOTOR
CN3003
LDM 2
LDM 1
CN2
CN3004
TO ROTARY ENCODER
CN3005
TO REC SAFETY
REC SAFETY
START SENS
END SENS
TU REEL SENS
SUP REEL SENS
Q3001
Q3002
PS3002
PS3001
CAP MDA
CAP REV
CAP CTL V
CAP FG
IC3001
CF3001
MAIN CLK
(10MHz)
X2
X1
X3001
TIMER CLK
(32kHz)
IC3003
AL5.8V
RESET
TS CS
TM CLOCK
TS BUSY
IC7201
CS
CLOCK
BUSY
CF7201
CLK
(6.00 MHz)
M
5
4
3
2
1
A
B
C
D
E
F
G
H

4.26 VIDEO BLOCK DIAGRAM


0 5 3D SVHS (VIDEO,3D/TBC)
IC1401
DFFI
VR
PS com/CNF
REC
PB
COUT
3L COMB
Y COMB
YOUT
FSCIN
CIN
VYIN
Q1406, L1404
L1405, L1207
C1414 - C1418
Q1405
BPF
BUF
Q1408, L1406
C1421 - C1423
Q1407
LPF
Q1404
Q1403, L1401
C1405 - C1407
Q1402
Q1008
V.PULSE
ES
Q1009, Q1010
V.STB(L)
NOT USED
Q1021
SECAM CONV.
IC1001
CLAMP
3D ON/OFF
LPF2
EQ1
3DEE
3DPB
SW23
EE. SEP
SW21
PB3D
EE. SS
PS CONV
SW7
SW8
SW2
EE
ATT
Sep
Com
SW1
AGC
DET
S. Sep
MIN
MAX
VREF
SW5
C. ADJ2
LIM
PB ON
LPF1
FBC
SW22
SS
3D
NOTCH
SW6
SW9
N. C
BB
SW11
MUTE
6dB
C.MUTE
BF
SW13
L-1 V IN
F-1 V IN
SW24
TU
SW14 PB
SW3 VHS
SVHS
N/S-LPF
SW4
EQ
SW10
SW CTL
to filter
CR adj
I²C Interface
Q1013
Q1011
L1004, C1011
FILTER
L1003, C1010
IC1005
F-1 C IN
FRONT
L-1 C IN
3 6 JACK
J7194
FRONT S IN
CN7192
FRONT C
FRONT Y
CN1004
IC1003
L-1 Y IN
F-1 Y IN
Q1003
FRONT (L)
IC1002
R1010, R1012
C1041, C1043
R1011, R1013, R1014
C1042, C1044
EP
SP
NL PROCESS
R1017, R1018, R1020
C1048, C1049
R1016, R1019, R1021
C1047, C1050
CN1001
D.FF
V.REF
FSC
PB COLOR
L-1 Y IN
L-1 C IN
L-1 V IN
CN1002
C OUT
Y OUT
REC C OUT
V FROM OSD
V TO OSD
I2C CLK
I2C DATA
SVHS (L)
Y FROM AV1
Y TO AV1
PB Y
ME ALC DET
TU V IN
F-1 V IN
a
b
c
d
e
f
g
h
i
j
k
l
m
n
o
p
q
r
s
t
u
5
4
3
2
1
A
B
C
D
E
F
G
H


0 3 MAIN (VIDEO/ON SCREEN)
TO SYSCON
VIDEO ENV
HEAD SEL
EE (L)
I2C DATA
I2C CLK
V.P CTL
S (H)
OSD CS
S CLK
S DATA
TO SERVO
D.FF
FSC
C.SYNC/VREF
TO TUNER
RF VIDEO
TU VIDEO
J5
L-1 S-IN
C
Y
J6
REAR2 S-OUT
J1
REAR1 IN VIDEO
J2
REAR OUT VIDEO
Q9
BUF
CN101
CN102
a
b
c
d
e
f
g
h
i
j
k
l
m
n
o
p
q
r
s
t
u
3 6 JACK
J7191
FRONT IN VIDEO
CN7191
CN2
IC201
CS
SCLK
SDATA
CV IN
CV OUT
XTAL IN
Q208
BUF
L202, C201
FILTER
C43
FILTER
CLOCK DRIVER
BUF
Q6
IC2
Q16
ES
Q17
ES
Q15
BUF
L13
C79, C80
EQ
Q13, Q14
BUF
Q152
BUF
TP106
PB FM
TP111
D. FF
Q45
BUF
X2
NOT USED
IC1
6dB AMP
C.SOUELH
CCD CTL
CCD LPF
CLEAR SYNC
WHITE LIMITER
C.K
N→P
SOUELH
B.D
Feed Back Clamp
Video ALC
VCA
Serial Cont Interface
2fsc VCO
IH LOCK CTL
Clock
CR Det 2fsc
X-tal VCO/OSC
TANC
LEVEL Det
LEVEL Det2
CLPF
Delay
Color Killer ID Det.
PB APC
REC APC
REC AFC
PB/REC Discri
ME SECAM DET
APC SW
ACC Det
1/2 Phase SW
DOWN Conv.
1/2 2FL VCO
Sync.Sep.
Pulse Gen.
NOT USED
MODE CTL
4Phase Gen.
C-CCD
Main Conv2
Main Conv1
CTL TRAP fH HPF
ACC
2M LPF
B.E
C.K
MIX LEVEL ADJ
TRAP
HPF
SEP
COMP
L-SECAM
REC TRAP
OFF
BPF
LPF
REC MUTE
VCA
SQPB
SQPB DL
P EQ
FM AGC
DET
629 TRAP
G EQ
REC AGC Det
PB ALC
Edge Delay
DO Det
DLIM
DeMOD
APT CTL
D.E. N.C.
N.L. De.Emph
N.L. Emph
FBC/ALC
Sub LPF
Main De.Emph
1MHPF
7MHPF
lagless LPF
FM MOD
Y-CCD
Video AGC
YNR
DO
Main Emph Carrier Offset W.C/D.C
fo/Dev Adj
S-DET
Y.LPF
ATT (-10dB)
LPF
Clamp
SW5V
IC1
Head SW1
Head SW2
D.FF CTL
HPF
ENV DET
SP2
SP1
EP2
EP1
CH2
CH1
SP
EP
A.VCC
REC EQ
EP ON
SW1
REC ON
REC AMP
SW2
DET
SP ON
MUTE CTL
AUDIO SECTION
CN1
U. DRUM
VIDEO HEAD
SP CH2
SP CH1
EP CH2
EP CH1
1
2
3
4
5
A
B
C
D
E
F
G
H

4.27 AUDIO BLOCK DIAGRAM



0 3 MAIN (FMA/N. AUDIO)
TO TUNER
DEMOD (R)
DEMOD (L)
RF AUDIO
J1 REAR1 IN
AUDIO (R)
AUDIO (L)
J2 REAR OUT
AUDIO (R)
AUDIO (L)
TO SYSCON
IND (R)
IND (L)
IC2201
INPUT SELECT (R-CH)
NOISE REDUCTION
PRE EMP
DE EMP
MOD
DE MOD
MIX
EVR /AGC
NOT USED
MIX
NORMAL
R CH
L CH
OUTPUT SELECT
BPF
LIM
BPF
NORMAL INPUT SELECT
EVR /AGC
LOG
LOG
DE MOD
MOD
NOISE REDUCTION
DE EMP
PRE EMP
INPUT SELECT (L-CH)
N DET
A FF
DATA
CLK
A MUTE
34
35
32
33
41
37
43
45
44
46
38
47
48
6
4
5
7
15
19
18
17
16
23
20
TP2254 A.REC FM
TP2253 A.PB FM
IC2251
DET
AGC
REC AMP
PRE
PRE
13
1
14
7
5
3
CN1
9
10
11
12
13
TO AUDIO/FLY. E
CH1
CH2
FLY.E HEAD
Q402
ES
Q401
BUFF
Q403
ES
Q404, Q405
BUFF
FLY.ON(H)
H.REC(H)
AFF
I2C DATA
I2C CLK
A ENV/ND
A.MUTE
N.REC ST
N. REC
FULL E ON
TO SYSCON
Q2052-Q2055
POWER SW
OSC
Q2051
TRANS
T2051
5
6
Q2062, Q2063
POWER SW
OSC
Q2061
TRANS
T2052
5
TP2034 F.ERASE
CN2002
2
1
TO FE HEAD
FE HEAD
TP2033 A.ERASE
CN2001
4
3
2
1
TO A/C HEAD
AE HEAD
REC/PB
3 6 JACK
J7193 FRONT IN
AUDIO (R)
J7192 FRONT IN
AUDIO (L)
CN7191
5
7
F.AUDIO (R)
F.AUDIO (L)
CN2
3
1
IC1
11
9
8
7
99
NOT USED
MUTE CTL
DET
VCA
R
P
SP OFF
PRE AMP
REC ON
EP ON
REC EQ
100
1
2
3
4
R2003-R2005 C2003,C2004
FILTER
R2007,C2009
FILTER
7 2 VSC
IC2501
VSC CLK
VSC DATA
33
34
CPU INTER-FACE
D/A CONV
RAM INTER-FACE
PROCESS
CLOCK GEN
A/D CONV
SW
AMP
AMP
CF2501
10
11
43
47
48
50
51
52
LPF
R2509 ~R2511 C2511, C2512
LPF2501
LPF
6
3
CN2501
4
2
VSC AUDIO
NA PB
CN2101
4
2
1
2
3
4
5
A
B
C
D
E
F
G
H

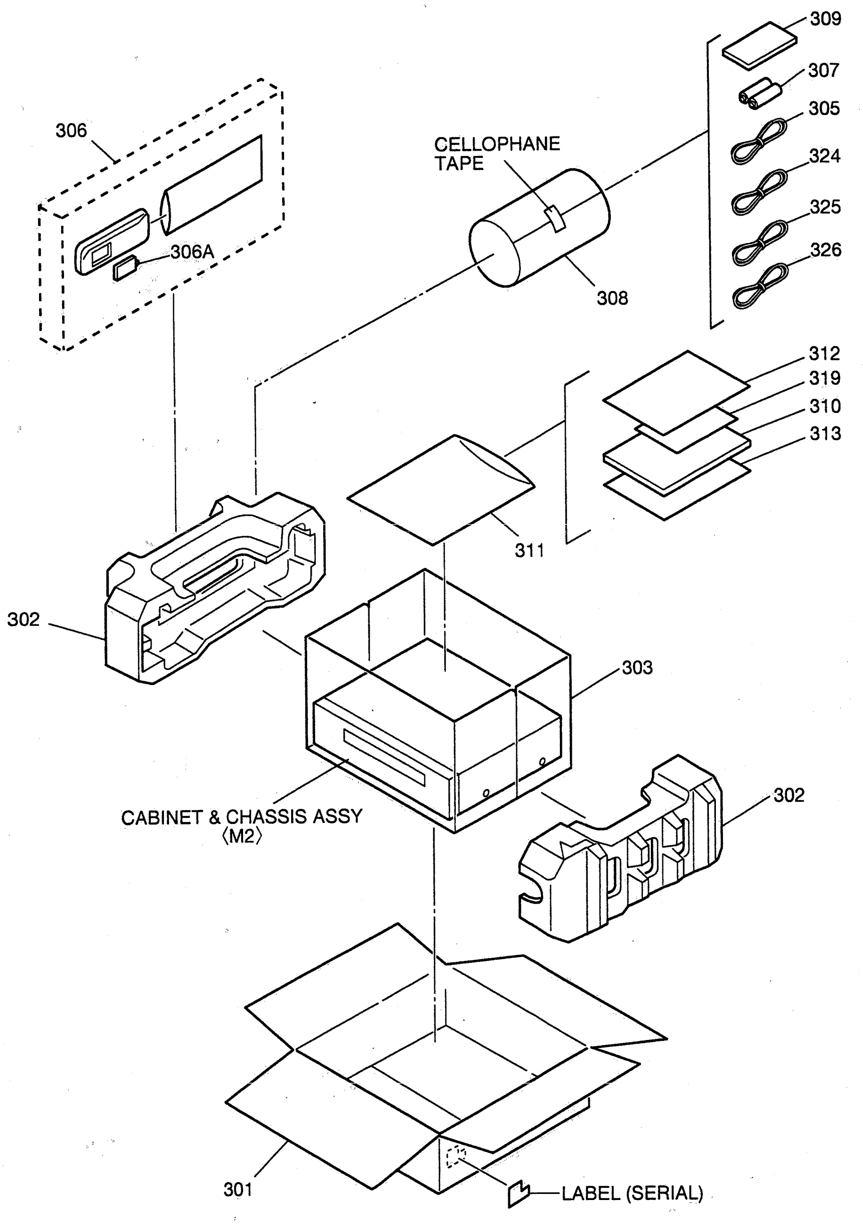
SECTION 5
PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING AND ACCESSORY ASSEMBLY <M1>

The instruction manual to be provided with this product will differ according to the destination.


309
307
305
324
325
326
306
306A
CELLOPHANE TAPE
308
312
319
310
313
311
302
303
CABINET & CHASSIS ASSY ⟨M2⟩
302
301
LABEL (SERIAL)

****

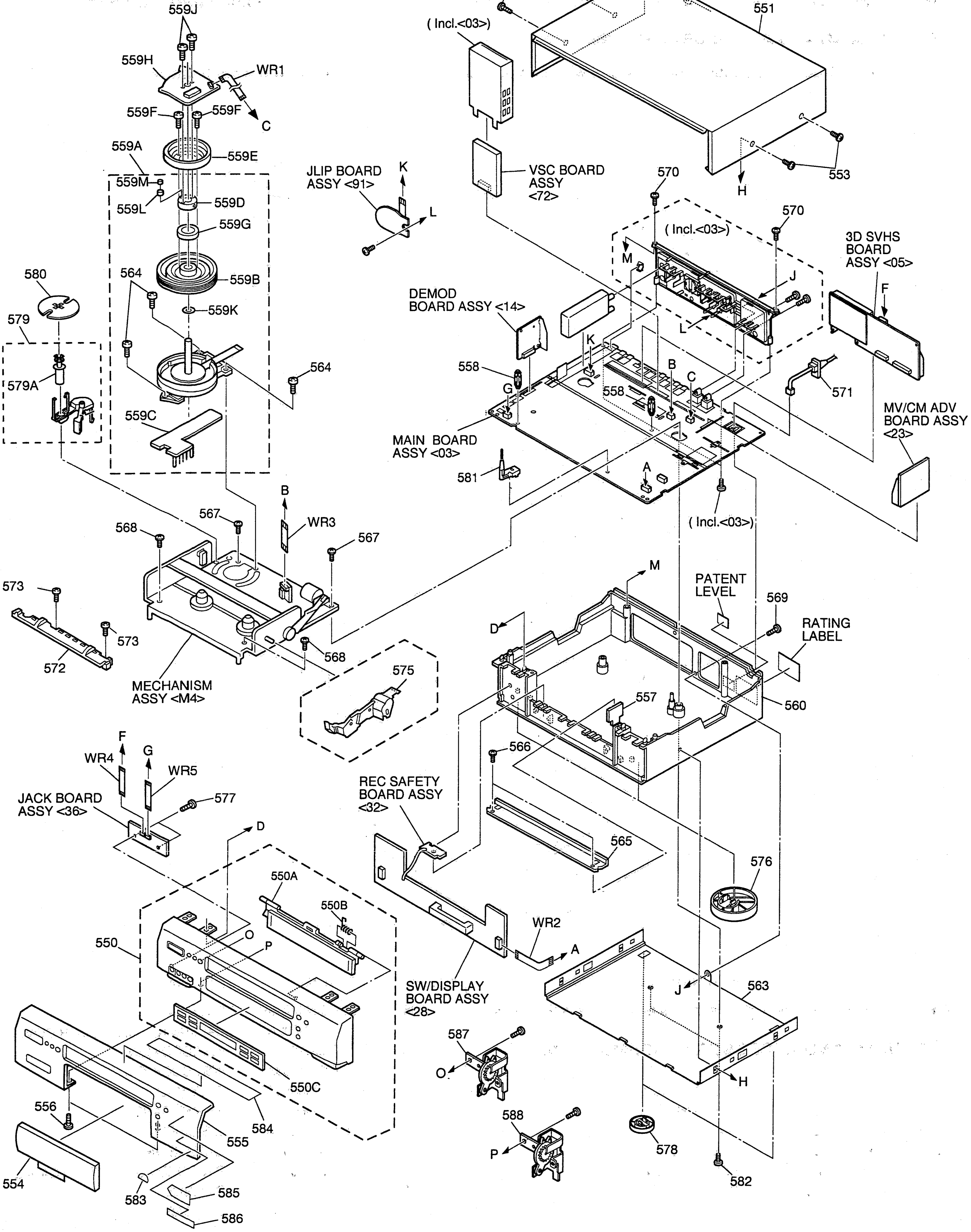
PACKING AND ACCESSORY ASSEMBLY <M1>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	301	LP30450-001B	PACKING CASE
	302	LP30430-001A	CUSHION ASSY
	303	PQM30021-95	POLY BAG
	305	PEAC0294-04	RF CABLE
	306	LP20465-001D	REMOTE CONTROLLER
	306A	LP40254-003B	COVER(BATTERY)
	307	–	BATTERY(R6P TYPE)
	308	QPC02202230P	POLY BAG
	309	LP40164-002A	CAP(JACK)(CONNECTOR COVER)
⚠	310	LPT0027-001A	INST.BOOK(EN)
⚠		LPT0027-003A	INST.BOOK(FR)
	311	QPC02503530P	POLY BAG
	312	BT-51006-1	REGIST.CARD
	313	LPT0027-002A	Q.S.SHEET
	319	LP40437-001A	LABEL(S-VHS ET)
	324	PEAC0359-120	PIN CORD,AUDIO/VIDEO CABLE
	325	PU60111	S CABLE
	326	QAL0095-004	LED CABLE ASSY

5.2 CABINET AND CHASSIS ASSEMBLY <M2>

BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.



559J
559H
WR1
C
559F
559F
559A
559E
559M
559L
559D
559G
564
559B
559K
564
559C
580
579
579A
553
552
551
(Incl.<03>)
VSC BOARD ASSY <72>
553
H
JLIP BOARD ASSY <91>
K
L
570
570
(Incl.<03>)
M
J
3D SVHS BOARD ASSY <05>
F
DEMOD BOARD ASSY <14>
L
K
B
C
558
G
558
571
MV/CM ADV BOARD ASSY <23>
MAIN BOARD ASSY <03>
581
A
(Incl.<03>)
B
WR3
567
568
567
573
573
572
568
MECHANISM ASSY <M4>
575
M
D
PATENT LEVEL
569
RATING LABEL
557
560
566
F
G
WR4
WR5
JACK BOARD ASSY <36>
577
D
REC SAFETY BOARD ASSY <32>
565
576
550A
550B
550
O
P
WR2
A
SW/DISPLAY BOARD ASSY <28>
J
563
587
O
H
550C
556
584
555
588
P
578
554
583
585
586
582

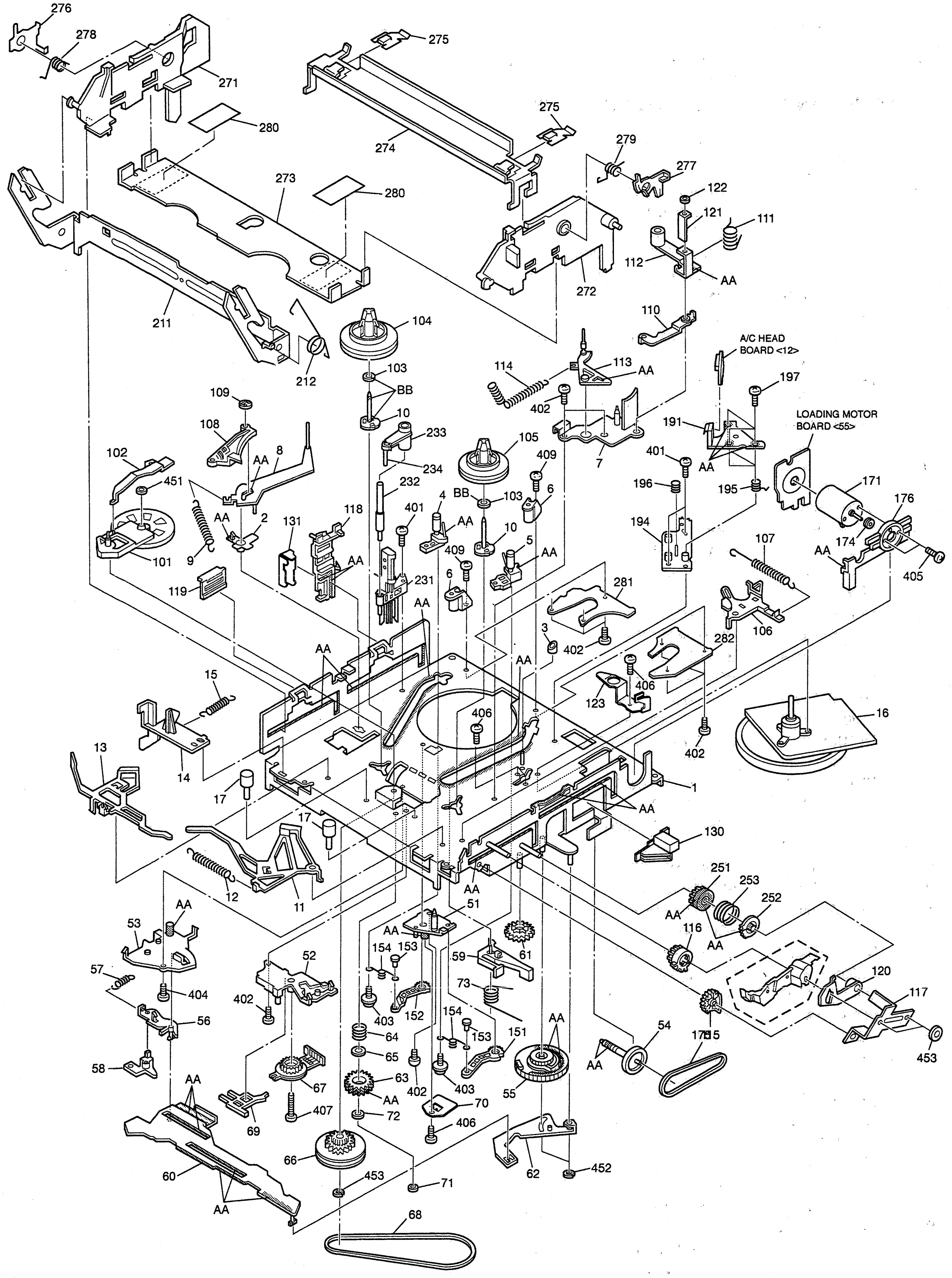
****

CABINET AND CHASSIS ASSEMBLY <M2>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
⚠	550	LP10088-003B	FRONT PANEL ASSY
	550A	LP20249-004B	C.H.DOOR
	550B	PQ46448	TORSION SPRING
	550C	LP20250-002A	DISPLAY WINDOW
⚠	551	PQ11922-16	TOP COVER
	552	QYTDSF3010M	SCREW,TOP COVER(REAR)
	553	QYTDSF3010R	SCREW,X4 TOP COVER(SIDE)
	554	LP20255-002A	WINDOW(DOOR)
	555	LP20315-002B	COVER(F.P)ASSY
	556	QYTDSF2608Z	SCREW,X2 COVER(FRONT PANEL)
	557	LP40441-001A	SPACER(MECHA)
	558	LP40226-001A	PC SUPPORT,X2
	559A	LP20319-002A	DRUM SUB ASSY
	559B	LP20030-014A	UPPER DRUM ASSY
	559C	LPA20002-01B	SENSOR BOARD ASSY
	559D	LP40028-001A	COLLAR ASSY
	559E	PDZ0179-2	ROTOR ASSY
	559F	QYSPSP3006Z	SCREW,X2
	559G	PDM4439	CAP
	559H	PDZ0181-2-2	STATOR ASSY
	559J	QYSPSP2606Z	SCREW,X2
	559K	PDM4444-19-2	WASHER
	559L	LP40323-001A	CONTACT
	559M	LP30004-005A	COMPRES. SPRING
⚠	560	LP10140-001A	BOTTOM CHASSIS
⚠	563	PQ11921-1-3	BOTTOM COVER
	564	QYTPST2608Z	SCREW,X3 DRUM
	565	LP30312-001B	BRACKET(CHASSIS)
	566	QYTDSF3010Z	SCREW,X2 BRACKET(CHASSIS)
	567	QYTDSF4012Z	SCREW,X2 MECHA
	568	QYTDSF3010Z	SCREW,X2 MECHA
	569	QYTDSF3010M	SCREW,TERMINAL
	570	QYTDSF3010Z	SCREW,X2 TERMINAL
⚠	571	QMP14K0-170	POWER CORD
	572	LP30247-001B	FRONT BRACKET
	573	QYTDST2606Z	SCREW,X2 FRONT BRACKET
	575	LP20324-002B	DOOR OPENER
	576	PQ46617A	FOOT ASS'Y
	577	QYTDSF2608Z	SCREW,X2 JACK BOARD
	578	PQ35504-2	FOOT(2),X2
	579	LP40370-001B	ROLLER ARM ASSY
	579A	PDM4311A-1	ROLLER ASSY
	580	PQ44230	INERTIA PLATE
	581	LP40407-001A	KNOB ASSY
	582	QYTDSF3010Z	SCREW,X2 BOTTOM COVER
	583	LP40266-001B	STICKER(ENERGY)
	584	LP30350-016A	STICKER(2)
	585	LP40431-001B	STICKER(4)
	586	LP40452-001A	STICKER(SVHSET)
	587	LP40158-001B	DAMPER ASSY,C.H.DOOR
	588	LP40158-002B	DAMPER ASSY,WINDOW(DOOR)
	WR1	QUQ212-0422CG	FFC WIRE,DRUM
	WR2	QUQ112-1214CG	FFC WIRE,DISPLAY
	WR3	WJT0005-002A	E-CARD WIRE,AC/HEAD
	WR4	QUQ212-0456CG	FFC WIRE,S JACK
	WR5	QUQ212-0514CG	FFC WIRE,JACK

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION

5.3 MECHANISM ASSEMBLY <M4>


276
278
271
275
280
274
275
279
277
273
280
122
121
111
112
AA
272
211
212
104
110
A/C HEAD BOARD <12>
103
BB
10
114
113
AA
197
109
402
108
233
105
191
LOADING MOTOR BOARD <55>
102
8
AA
234
409
7
AA
401
451
232
4
BB
103
6
196
195
171
176
AA
2
131
118
401
AA
10
194
107
101
9
AA
409
5
AA
174
AA
405
119
231
6
281
AA
106
3
402
282
AA
AA
15
406
406
123
16
402
13
14
17
1
AA
17
130
12
11
AA
51
251
253
252
AA
53
AA
154
153
AA
116
AA
57
52
59
61
120
404
402
73
117
56
403
152
154
153
151
AA
54
175
115
64
58
AA
65
63
AA
67
402
403
55
AA
453
407
72
70
69
406
66
453
71
62
452
60
AA
68

Classifi-cation	Part No.	Symbol in drawing
Grease	KYODO-SH-P	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

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MECHANISM ASSEMBLY <M4>

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION
1	LP20228-003D	MAIN DECK ASSY
2	LP30232-002A	T.ARM BEARING
3	LP40097-001B	G.POLE CAP
4	LP40101-002A	P.BASE ASSY(S)
5	LP40104-002A	P.BASE ASSY(T)
6	LP30409-002A	UV CATCHER 2,X2
7	LP20234-001C	LID GUIDE
8	LP40108-001A	TENSION ARM ASSY
9	LP30003-010A	TENSION SPRING
10	LP40123-001A	REEL SHAFT,X2
11	LP40111-002B	MAIN BRAKE AY (TAKE-UP)
12	LP30003-002A	TENSION SPRING
13	LP40110-002D	MAIN BRAKE ASSY (SUPPLY)
14	LP30245-001C	REC SAFTY LEVER
15	LP30003-004A	TENSION SPRING
16	QAR0032-003	CAPSTAN MOTOR
17	PQ46302-1-3	ADJUST PIN,X2
51	LP30223-003B	L.A.GEAR SHAFT
52	LP20233-003B	R.ENCODER GUIDE
53	LP30226-003B	CTL.PLATE GUIDE
54	LP40120-001A	WORM GEAR
55	LP30229-001B	CTL.CAM
56	LP30249-003B	T.UP LEVER
57	LP30003-006A	TENSION SPRING
58	LP40119-002A	T.UP HEAD
59	LP40113-001A	C.BRAKE ASSY
60	LP10080-002E	CTL.PLATE
61	LP30237-002A	CASSETTE GEAR
62	LP40107-002A	LINK LEVER ASSY
63	LP40122-001A	DIRECT GEAR
64	LP40224-001C	COMPRESSION SPRING
65	LP30017-002A	SPACER,D.GEAR
66	LP40115-002C	CLUTCH UNIT
67	QSW0554-002	ROTARY ENCODER
68	LP30005-005A	BELT,CAP.MOTOR
69	LP30235-002A	CHANGE LEVER
70	LP40379-001A	CTL BRACKET(1)
71	LP30016-001A	SLIT WASHER
72	LP30017-009A	SPACER,D GEAR
73	LP40355-002A	TORSION SPRING
101	LP40114-002D	IDLER ARM ASSY
102	LP30236-002A	IDLER LEVER
103	LP30017-004	SPACER,REEL DISK
104	LP20237-001B	REEL DISK (SUPPLY)
105	LP20238-001B	REEL DISK (TAKE-UP)
106	LP40112-001D	S.BRAKE(T)ASSY
107	LP40357-001B	TENSION SPRING
108	LP40109-002C	T.BRAKE ASSY
109	PQ46302-1-3	ADJUST PIN
110	LP40149-001B	P.LEVER ASSY
111	LP40148-001A	TORSION SPRING
112	LP40105-001A	P.R.ARM ASSY
113	LP40106-001B	GUIDE ARM ASSY
114	LP40134-001B	TENSION SPRING
115	LP30243-001B	DRIVE GEAR
116	LP30242-001A	RELAY GEAR
117	LP40214-001A	C.H.BRACKET
118	LP30244-001D	GUIDE RAIL
119	LP40118-001A	RAIL CAP
120	LP30339-001A	OPENER GUIDE
121	LP40382-001A	P.R. SHEET
122	LP30016-002A	SLIT WASHER
123	LP30482-001A	P.ROLLER GUIDE
130	LP30493-001A	START SENSOR CAP
131	LP40457-001A	END SENSOR SHEET2
151	LP40103-002A	L.ARM GEAR(T)
152	LP30224-001A	L.ARM GEAR(S)
153	LP40100-001A	PIN,L.ARM GEAR(S)
	LP40100-001A	PIN,L.ARM GEAR(T)
154	LP40099-001A	TORSION ARM,L.ARM GEAR(S)
	LP40099-001A	TORSION ARM,L.ARM.GEAR(T)
171	QAR0023-001	LOADING MOTOR
174	PQ43546-1-2	MOTOR PULLEY
175	LP30005-003A	BELT,LOADING MOTOR
176	LP30230-001B	MOTOR GUIDE
191	QAH0010-002	AC HEAD
194	LP30228-001A	HEAD BASE
195	LP30004-012A	COMPRES.SPRING X3
196	LP40236-001A	COMPRESSION SPRING
197	LP40213-002B	SPECIAL SCREW,X3
211	LP20240-001B	DRIVE ARM
212	LP40137-001A	TORSION SPRING
231	NAH0001-001	FULL ERASE HEAD
232	LP40098-001B	GUIDE POLE(S)
233	LP30459-001A	T.STUD BASE
234	LP40367-001A	TENSION STUD
251	LP30239-002E	LIMIT GEAR(1)
252	LP30240-002C	LIMIT GEAR(2)
253	LP40136-001D	TORSION SPRING
271	LP10081-001C	SIDE HOLDER(L)
272	LP40403-001B	S.HOLDER(R)ASSY
273	LP30257-001C	CASSETTE HOLDER
274	LP20241-001C	TOP PLATE
275	LP30258-001B	SPRING PLATE,X2
276	LP30255-001F	LOCK LEVER(L)
277	LP30256-001D	LOCK LEVER(R)
278	LP40168-001A	TOR.SPRING(L)
279	LP40218-001B	TOR.SPRING(R)
280	LP30019-006C	PAD,X2
281	LP40275-001A	PLATE(S)
282	LP40276-001A	PLATE(T)
401	QYTDST2608Z	SCREW,FE.HEAD
	QYTDST2608Z	SCREW,X2 HEAD BASE
402	QYTDST2606Z	SCREW,X6 PLATE(S)(T)
	QYTDST2606Z	SCREW,L.A.GEAR
	QYTDST2606Z	SCREW,R.ENCODER GUIDE
	QYTDST2606Z	SCREW,X2 LID GUIDE
403	QYSPSTG2606Z	SCREW,POLE BASE(S)
	QYSPSTG2606Z	SCREW,P.BASE(T)
404	QYTPST2605Z	SCREW,CTL.PLATE GUIDE
405	QYTPSP3003Z	SCREW,X2 LOADING MOTOR
406	QYTDSF2608M	SCREW,CTL BRACKET(1)
	QYTDSF2608M	SCREW,X3 CAP.MOTOR
407	QYTPST2620Z	SCREW,R.ENCODER
409	QYTPST2606Z	SCREW,X2 UV CATCHER
451	LP30016-001A	SLIT WASHER,IDLER ARM
452	PQM30017-24	SLIT WASHER,CTL.CAM
	PQM30017-24	SLIT WASHER,LINK LEVER
453	PQM30017-47	SLIT WASHER,CLUTCH GEAR
	PQM30017-47	SLIT WASHER,X2 C.H.BRACKET

5.4 ELECTRICAL PARTS LIST

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MAIN BOARD ASSEMBLY <03>

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION
		PW1	LPA10028-05E1	MAIN BOARD ASSY
		IC1	JCP8016-NSB	IC
		IC2	MM1113XF	IC
		IC201	LC74785-9644	IC (OSD)
		IC2201	AN3665FB-A	IC
	⚠	IC2251	AN3328S	IC
		IC3001	HD6433929TB31F	QFP IC (MCU)
		IC3002	TA7291S	IC
		IC3003	S-80728AN-DR-X	IC
		IC3004	AT24C16-10PC	IC
			or 24LC16B/P	IC
		IC3301	HD6433926TB35F	QFP IC (MCU)
		IC3302	TA7291S	IC
		IC4001	BU2881BS	IC
			or BU2882BS	IC
		IC4101	BA10324AF-XE	IC
		IC4102	TC4S30F	IC
		IC4103	BU4066BCF	IC
		IC5301	LA5613	IC
		IC7201	UPD754302GS-100	IC(MICRO C ROM)
			or UPD75P4308GS100	IC(MICRO C ROM)
		Q6	2SA1576A/QRS/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
			or 2SB1218A/QR/-X	TRANSISTOR
		Q9	2SA1576A/QR/-X	TRANSISTOR
			or 2SB1218A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
		Q13	2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
		Q14	2SC4081/QRS/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
		Q15	2SA1576A/QRS/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
			or 2SB1218A/QR/-X	TRANSISTOR
		Q16	DTA144WU	TRANSISTOR
			or RN2309	TRANSISTOR
			or UN511E	TRANSISTOR
		Q17	DTC144WU	TRANSISTOR
			or RN1309	TRANSISTOR
			or UN521E	TRANSISTOR
		Q18	DTC124EU	TRANSISTOR
		Q21	DTC114EU	TRANSISTOR
			or RN1302	TRANSISTOR
			or UN5211	TRANSISTOR
		Q44	DTA144WU	TRANSISTOR
			or RN2309	TRANSISTOR
			or UN511E	TRANSISTOR
		Q45	2SC4081/QRS/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
		Q49	2SC3936/BC/-X	TRANSISTOR
		Q101	DTC144WU	TRANSISTOR
			or RN1309	TRANSISTOR
			or UN521E	TRANSISTOR
		Q152	2SA1576A/QR/-X	TRANSISTOR
			or 2SB1218A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
		Q201	2SA1576A/QRS/-X	TRANSISTOR
			or 2SB1218A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
		Q202	2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
		Q207	DTC144WU	TRANSISTOR
			or RN1309	TRANSISTOR
			or UN521E	TRANSISTOR
		Q208	2SA1576A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
			or 2SB1218A/QR/-X	TRANSISTOR
		Q209	2SA1576A/QR/-X	TRANSISTOR
			or 2SB1218A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
		Q401	2SA1576A/QRS/-X	TRANSISTOR
			or 2SB1218A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
		Q402	DTC144WU	TRANSISTOR
			or RN1309	TRANSISTOR
			or UN521E	TRANSISTOR
		Q403	DTC144WU	TRANSISTOR
			or RN1309	TRANSISTOR
			or UN521E	TRANSISTOR
		Q404	2SA1576A/QRS/-X	TRANSISTOR
		Q405	2SA1576A/QRS/-X	TRANSISTOR
		Q2001	2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
		Q2002	2SC4081/QRS/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
		Q2003	DTA144WU	TRANSISTOR
			or RN2309	TRANSISTOR
			or UN511E	TRANSISTOR
		Q2051	2SC4081/QRS/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
		Q2052	2SA1576A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
			or 2SB1218A/QR/-X	TRANSISTOR
		Q2053	DTC144WU	TRANSISTOR
			or RN1309	TRANSISTOR
			or UN521E	TRANSISTOR
		Q2054	2SA1576A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
			or 2SB1218A/QR/-X	TRANSISTOR
		Q2055	DTC144WU	TRANSISTOR
			or RN1309	TRANSISTOR
			or UN521E	TRANSISTOR
		Q2061	2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
		Q2062	DTA114EU	TRANSISTOR
			or RN2302	TRANSISTOR
			or UN5111	TRANSISTOR
		Q2063	DTC144WU	TRANSISTOR
			or RN1309	TRANSISTOR
			or UN521E	TRANSISTOR

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION
		Q2102	DTC144WU	TRANSISTOR
			or RN1309	TRANSISTOR
			or UN521E	TRANSISTOR
		Q2103	2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
		Q2251	DTA144WU	TRANSISTOR
			or RN2309	TRANSISTOR
			or UN511E	TRANSISTOR
		Q2253	DTC144WU	TRANSISTOR
			or RN1309	TRANSISTOR
			or UN521E	TRANSISTOR
		Q2256	DTC114EU	TRANSISTOR
			or RN1302	TRANSISTOR
			or UN5211	TRANSISTOR
		Q2257	DTC144WU	TRANSISTOR
			or RN1309	TRANSISTOR
			or UN521E	TRANSISTOR
		Q3001	PTZ-NV09	PHOTO TRANSISTOR
			or PTZ-NV16	PHOTO TRANSISTOR
		Q3002	PTZ-NV09	PHOTO TRANSISTOR
			or PTZ-NV16	PHOTO TRANSISTOR
		Q3003	2SC4081/QRS/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
		Q3005	2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
		Q3006	DTC144WU	TRANSISTOR
			or RN1309	TRANSISTOR
			or UN521E	TRANSISTOR
		Q3007	2SB1256	TRANSISTOR
		Q3301	2SC4081/QRS/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
		Q4001	DTC114EU	TRANSISTOR
			or RN1302	TRANSISTOR
			or UN5211	TRANSISTOR
		Q4101	DTC144WU	TRANSISTOR
			or UN521E	TRANSISTOR
			or RN1309	TRANSISTOR
		Q4102	DTC144WU	TRANSISTOR
			or RN1309	TRANSISTOR
			or UN521E	TRANSISTOR
		Q5101	2SK2043-CB14	FE TRANSISTOR
			or 2SK2043	FE TRANSISTOR
			or 2SK2324	FE TRANSISTOR
			or 2SK1953	FE TRANSISTOR
			or 2SK2324-LT	MOS FET
		Q5102	2SD2144S/UV/-T	TRANSISTOR
		Q5317	2SD2061/F/	TRANSISTOR
		Q5318	2SD1819A/RS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SC4081/RS/-X	TRANSISTOR
		Q5451	2SB927/ST/-T	TRANSISTOR
		Q5452	DTC144EU	TRANSISTOR
			or UN5211	TRANSISTOR
		Q6001	2SC3243/DE/-T	TRANSISTOR
		Q6031	UN5216	TRANSISTOR
			or DTC143TU	TRANSISTOR
		D16	1N4148M	DIODE
			or 1SS133	DIODE
		D20	1N4148M	DIODE
			or 1SS133	DIODE
		D201	1N4148M	DIODE
			or 1SS133	DIODE
		D202	1N4148M	DIODE
			or 1SS133	DIODE
		D207	1N4148M	DIODE
			or 1SS133	DIODE
		D208	1SS133	DIODE
		D2001	1N4148M	DIODE
			or 1SS133	DIODE
		D2201	11ES2	DIODE
		D2253	1N4148M	DIODE
			or 1SS133	DIODE
		D3001	LNB2301L01VI	LE DIODE
		D3002	11ES2	DIODE
		D3003	11ES2	DIODE
		D3005	RD39ES/B3/-T2	ZENER DIODE
		D3007	1N4148M	DIODE
			or 1SS133	DIODE
		D3008	DAP202U	DIODE
		D3013	1N4148M	DIODE
			or 1SS133	DIODE
		D3014	1N4148M	DIODE
			or 1SS133	DIODE
		D3015	1N4148M	DIODE
			or 1SS133	DIODE
		D3016	DAN202U	DIODE
		D4101	DA204U	DIODE
		D4102	DAP202U	DIODE
		D4103	1SS133	DIODE
		D5001	S1WB(A)60F4102	BRIDGE DIODE
			or S1WB(A)60F4072X	BRIDGE DIODE
			or S1WB(A)60F4062X	BRIDGE DIODE
		D5101	AU01	FR DIODE
			or ERA18-04-T2	FR DIODE
			or PG104RS	FR DIODE
			or 10ELS4	FR DIODE
			or 1SR153-400-T2	FR DIODE
		D5102	AU01	FR DIODE
			or ERA18-04-T2	FR DIODE
			or 10ELS4	FR DIODE
			or 1SR153-400-T2	FR DIODE
			or PG104RS	FR DIODE
		D5103	1N4148M	DIODE
			or 1SS133	DIODE
		D5104	UZ15BSC	ZENER DIODE
			or MTZJ15C	ZENER DIODE
			or RD15ES/B3/-T2	ZENER DIODE
		D5201	ERA18-02-T2	FR DIODE
			or 1SR153-400-T2	FR DIODE
		D5203	AU01Z	FR DIODE
			or ERA18-02-T2	FR DIODE
			or PG104RS	FR DIODE
			or 1SR153-400-T2	FR DIODE
			or 10ELS2	FR DIODE
		D5204	AU01Z	FR DIODE
			or ERA18-02-T2	FR DIODE
			or 1SR153-400-T2	FR DIODE
			or 10ELS2	FR DIODE

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
			or PG104RS	FR DIODE	
		D5205	AU01Z	FR DIODE	
			or PG104RS	FR DIODE	
			or 10ELS2	FR DIODE	
			or ERA18-02-T2	FR DIODE	
			or 1SR153-400-T2	FR DIODE	
		D5206	FMB-24	BARRIER DIODE	
			or F5KQ40B	BARRIER DIODE	
			or YG801C04	SB DIODE	
			or MA7D49	SB DIODE	
		D5210	AU01Z	FR DIODE	
			or ERA18-02-T2	FR DIODE	
			or PG104RS	FR DIODE	
			or 1SR153-400-T2	FR DIODE	
			or 10ELS2	FR DIODE	
		D5211	AU01Z	FR DIODE	
			or ERA18-02-T2	FR DIODE	
			or PG104RS	FR DIODE	
			or 10ELS2	FR DIODE	
			or 1SR153-400-T2	FR DIODE	
		D5301	UZ15BSA	ZENER DIODE	
			or RD15ES/B1/-T2	ZENER DIODE	
			or MTZJ15A	ZENER DIODE	
		D5302	11E2-T5	DIODE	
		D5304	1N4148M	DIODE	
			or 1SS133	DIODE	
		D5305	UZ30BSA	ZENER DIODE	
			or RD30ES/B1/-T2	ZENER DIODE	
			or MTZJ30A	ZENER DIODE	
		D5306	UZ6.8BSA	ZENER DIODE	
			or RD6.8ES/B1/-T2	ZENER DIODE	
			or MTZJ6.8A	ZENER DIODE	
		D5313	RD5.1JS/B2/-T2	ZENER DIODE	
			or MA4051N/M/-T2	ZENER DIODE	
		D5314	1N4148M	DIODE	
			or 1SS133	DIODE	
		D5351	11E2-T5	DIODE	
		D5352	11E2-T5	DIODE	
		D5353	11E2-T5	DIODE	
		D6001	MTZJ10B	ZENER DIODE	
		D6002	HZ30-2L-T2	ZENER DIODE	
			or HZ30-2LTD	Z DIODE (M)	
		R1	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R2	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R6	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
		R7	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R10	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R11	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R16	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R23	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
		R24	NRVA02D-622X	CMF RESISTOR	6.2kΩ,1/10W
		R25	NRVA02D-152X	CMF RESISTOR	1.5kΩ,1/10W
		R29	QRE123J-331X	RESISTOR	330Ω,1/2W
		R30	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
		R32	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
		R33	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R44	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R48	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R49	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R50	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		R52	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R54	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R55	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
		R57	NRSA02J-152X	MG RESISTOR	1.5kΩ,1/10W
		R59	NRSA02J-125X	MG RESISTOR	1.2MΩ,1/10W
		R62	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R64	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W
		R68	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R69	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R71	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R75	NRVA02D-153X	MG RESISTOR	15kΩ,1/10W
		R94	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R101	NRSA02J-392X	MG RESISTOR	3.9kΩ,1/10W
		R113	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R116	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R117	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R133	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R134	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R138	NRSA02J-392X	MG RESISTOR	3.9kΩ,1/10W
		R139	NRSA02J-823X	MG RESISTOR	82kΩ,1/10W
		R140	NRSA02J-224X	MG RESISTOR	220kΩ,1/10W
		R144	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
		R145	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
		R146	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
		R147	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
		R170	NRSA02J-822X	MG RESISTOR	8.2kΩ,1/10W
		R171	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R177	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R202	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R203	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R204	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R205	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R206	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R208	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R209	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R212	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R213	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R214	NRSA02J-331X	MG RESISTOR	330Ω,1/10W
		R217	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R218	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R228	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R230	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R231	NRSA02J-331X	MG RESISTOR	330Ω,1/10W
		R232	NRSA02J-331X	MG RESISTOR	330Ω,1/10W
		R233	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R401	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R402	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R403	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W
		R404	NRSA02J-683X	MG RESISTOR	68kΩ,1/10W
		R405	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R408	NRSA02J-681X	MG RESISTOR	680Ω,1/10W
		R409	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R410	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R2001	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R2002	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R2003	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		R2004	NRSA02J-224X	MG RESISTOR	220kΩ,1/10W
		R2005	NRSA02J-391X	MG RESISTOR	390Ω,1/10W
		R2006	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W
		R2007	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W
		R2013	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		R2016	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R2018	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R2019	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R2053	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R2054	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W
		R2055	NRSA02J-3R3X	MG RESISTOR	3.3Ω,1/10W
		R2056	QRE141J-820Y	RESISTOR	82Ω,1/4W
		R2057	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2058	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
		R2059	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2060	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
		R2061	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W
		R2062	NRSA02J-3R3X	MG RESISTOR	3.3Ω,1/10W
		R2063	NRSA02J-121X	MG RESISTOR	120Ω,1/10W
		R2101	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R2102	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R2105	NRSA02J-331X	MG RESISTOR	330Ω,1/10W
		R2106	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R2107	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R2201	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R2202	NRSA02J-333X	MG RESISTOR	33kΩ,1/10W
		R2203	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2205	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2206	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2207	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		R2209	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		R2210	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R2211	NRSA02J-511X	MG RESISTOR	510Ω,1/10W
		R2213	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R2214	NRSA02J-511X	MG RESISTOR	510Ω,1/10W
		R2215	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		R2217	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		R2218	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2219	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2221	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2222	NRSA02J-333X	MG RESISTOR	33kΩ,1/10W
		R2223	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R2224	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R2225	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R2226	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R2228	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R2229	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R2232	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W
		R2233	NRSA02J-823X	MG RESISTOR	82kΩ,1/10W
		R2251	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R2253	QRE141J-270Y	RESISTOR	27Ω,1/4W
		R2254	NRSA02J-220X	MG RESISTOR	22Ω,1/10W
		R2256	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R2257	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R2258	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R2259	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R2260	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R2261	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R2262	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R2601	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R2602	NRSA02J-821X	MG RESISTOR	820Ω,1/10W
		R2604	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R2605	NRSA02J-821X	MG RESISTOR	820Ω,1/10W
		R2607	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R2608	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R2711	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R2712	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3001	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3002	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3003	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3004	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3010	NRSA02J-105X	MG RESISTOR	1MΩ,1/10W
		R3015	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3016	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3017	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R3020	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3021	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3022	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3023	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3025	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3026	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3027	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3028	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3029	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3030	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3031	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3032	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3033	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3034	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3035	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3036	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3037	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3038	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3039	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3040	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3041	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3043	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3044	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3045	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3046	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3047	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3049	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3050	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3051	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3052	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3053	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3054	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3055	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3056	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3057	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R3058	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3059	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R3061	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3062	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3064	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3065	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3066	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3067	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3069	NRSA02J-271X	MG RESISTOR	270Ω,1/10W
		R3070	NRSA02J-271X	MG RESISTOR	270Ω,1/10W
		R3071	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3073	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3074	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3075	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3076	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3077	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3078	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R3079	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3201	NRSA02J-104X	MG RESISTOR	100kΩ,1/10W
R3203	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W
R3204	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
R3205	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3206	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3207	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3209	QRE141J-181Y	RESISTOR	180Ω,1/4W
R3210	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
R3211	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
R3212	NRSA02J-181X	MG RESISTOR	180Ω,1/10W
R3213	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W
R3214	NRSA02J-181X	MG RESISTOR	180Ω,1/10W
R3215	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W
R3216	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
R3217	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
R3218	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
R3219	QRL01DJ-100X	OMF RESISTOR	10Ω,1W
R3220	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3223	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3224	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3225	NRSA02J-104X	MG RESISTOR	100kΩ,1/10W
R3226	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3227	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W
R3228	NRSA02J-474X	MG RESISTOR	470kΩ,1/10W
R3229	NRSA02J-334X	MG RESISTOR	330kΩ,1/10W
R3230	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3231	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3232	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3233	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3234	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3235	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
R3236	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
R3237	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3238	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3239	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3240	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R3241	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R3242	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R3243	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3246	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3251	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3253	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3255	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3256	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3301	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3302	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3303	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3304	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3310	NRSA02J-105X	MG RESISTOR	1MΩ,1/10W
R3314	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3315	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3316	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3318	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3319	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3320	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3321	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3322	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3323	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3324	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3325	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3326	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
R3327	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
R3329	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R3330	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R3331	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3334	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3335	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3336	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3337	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3338	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3339	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3340	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3341	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3342	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R3343	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3344	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3345	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3346	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3347	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3348	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3349	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3350	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3351	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3352	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3353	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3354	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R3355	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
R3356	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
R3358	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3360	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3362	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3364	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3365	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3366	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R3367	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3368	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3369	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3370	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R3371	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3373	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3374	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3375	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R3376	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3377	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3378	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3379	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3380	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3501	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3502	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3503	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3505	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3506	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3509	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3510	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3511	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W
R3512	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W
R3513	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W
R3514	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W
R3515	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W
R3516	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
R3517	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		R4001	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R4003	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
		R4005	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R4008	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W
		R4009	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R4012	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R4013	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W
		R4014	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R4101	NRSA02J-105X	MG RESISTOR	1MΩ,1/10W
		R4102	NRSA02J-224X	MG RESISTOR	220kΩ,1/10W
		R4103	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R4104	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R4105	NRSA02J-104X	MG RESISTOR	100kΩ,1/10W
		R4106	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R4107	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R4108	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R4109	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R4110	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R4111	NRSA02J-105X	MG RESISTOR	1MΩ,1/10W
		R4112	NRSA02J-105X	MG RESISTOR	1MΩ,1/10W
		R4114	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R4115	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	⚠	R5001	QRC122K-475U	COMP RESISTOR	4.7MΩ,1/2W
		R5101	QRE141J-224Y	RESISTOR	220kΩ,1/4W
		R5102	QRE141J-224Y	RESISTOR	220kΩ,1/4W
		R5103	QRE141J-683Y	RESISTOR	68kΩ,1/4W
		R5104	QRG02GJ-683	OMF RESISTOR	68kΩ,2W
		R5106	QRT01DJ-R39X	MF RESISTOR	0.39Ω,1W
		R5107	QRE121J-331Y	RESISTOR	330Ω,1/2W
		R5108	NRSA02J-152X	MG RESISTOR	1.5kΩ,1/10W
		R5109	NRSA02J-681X	MG RESISTOR	680Ω,1/10W
		R5110	NRSA02J-224X	MG RESISTOR	220kΩ,1/10W
		R5301	NRSA02J-3R3X	MG RESISTOR	3.3Ω,1/10W
		R5302	NRSA02J-3R3X	MG RESISTOR	3.3Ω,1/10W
		R5303	NRSA02J-3R3X	MG RESISTOR	3.3Ω,1/10W
		R5304	NRSA02J-2R7X	MG RESISTOR	2.7Ω,1/10W
		R5306	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
		R5307	QRE141J-471Y	RESISTOR	470Ω,1/4W
		R5312	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R5313	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
	⚠	R5314	QRZ9005-101X	FUSI RESISTOR	47Ω,1/4W
		R5344	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R5345	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R5346	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R5347	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R5451	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R5452	QRE123J-331X	RESISTOR	330Ω,1/2W
		R6001	NRSA02J-271X	MG RESISTOR	270Ω,1/10W
		R6002	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R6020	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R6021	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R6022	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R6023	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R6032	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W
		R6034	NRSA02J-105X	MG RESISTOR	1MΩ,1/10W
		R6038	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W
		R6050	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R6053	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R6508	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R6510	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R7201	NRSA02J-105X	MG RESISTOR	1MΩ,1/10W

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		R7221	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R7236	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R7241	QRE141J-103Y	RESISTOR	10kΩ,1/4W
		VR2251	QVPA606-102Z	V RESISTOR,A.REC FM LEVEL	
		C1	QERF1CM-106	E CAPACITOR	10μF,16V
		C2	NCF21CZ-105X	CAPACITOR	1μF,16V
		C3	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		C4	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		C5	NCF21CZ-105X	CAPACITOR	1μF,16V
		C6	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C7	QERF1AM-227	E CAPACITOR	220μF,10V
		C8	NCF21CZ-105X	CAPACITOR	1μF,16V
		C9	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		C10	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		C11	NCF21CZ-105X	CAPACITOR	1μF,16V
		C12	NCB21EK-473X	CAPACITOR	0.047μF,25V
		C13	QEKJ1HM-335	E CAPACITOR	3.3μF,50V
		C14	NCF21CZ-474X	CAPACITOR	0.47μF,16V
		C16	NCF21CZ-105X	CAPACITOR	1μF,16V
		C18	NDC21HJ-120X	CAPACITOR	12pF,50V
		C19	NDC21HJ-270X	CAPACITOR	27pF,50V
		C20	NBE20JM-225X	T CAPACITOR	2.2μF,6.3V
		C21	NCB21HK-472X	CAPACITOR	0.0047μF,50V
		C23	NCB21EK-223X	CAPACITOR	0.022μF,25V
		C24	NCF21CZ-474X	CAPACITOR	0.47μF,16V
		C25	NCB21EK-683X	CAPACITOR	0.068μF,25V
		C29	NBE20JM-475X	T CAPACITOR	4.7μF,6.3V
		C30	NBE20JM-475X	T CAPACITOR	4.7μF,6.3V
		C31	NCB21EK-223X	CAPACITOR	0.022μF,25V
		C32	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C34	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C36	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C37	QEKJ0JM-107	E CAPACITOR	100μF,6.3V
		C41	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C42	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C43	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C45	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C47	NCB21HK-102X	CAPACITOR	0.001μF,50V
		C48	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
		C49	NDC21HJ-331X	CAPACITOR	330pF,50V
		C54	QEKJ1CM-106	E CAPACITOR	10μF,16V
		C55	QEKJ1CM-106	E CAPACITOR	10μF,16V
		C56	QEKJ1HM-335	E CAPACITOR	3.3μF,50V
		C57	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C58	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C59	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C61	NDC21HJ-120X	CAPACITOR	12pF,50V
		C62	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C63	NDC21HG-151X	CAPACITOR	150pF,50V
		C64	QEKJ0JM-107	E CAPACITOR	100μF,6.3V
		C65	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C66	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C67	QETC1CM-476	E CAPACITOR	47μF,16V
		C68	QETC0JM-477	E CAPACITOR	470μF,6.3V
		C73	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C74	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		C77	NDC21HJ-470X	CAPACITOR	47pF,50V
		C79	NDC21HJ-100X	CAPACITOR	10pF,50V
		C80	NDC21HJ-150X	CAPACITOR	15pF,50V
		C85	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C86	NBE20JM-226X	T CAPACITOR	22μF,6.3V

#	⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
	C87	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C88	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C89	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C90	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C91	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C92	NDC21HJ-220X	CAPACITOR	22pF,50V
	C99	NDC21HJ-220X	CAPACITOR	22pF,50V
	C107	NDC21HJ-4R0X	CAPACITOR	4pF,50V
	C108	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C119	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C120	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	C133	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C138	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C140	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C158	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C167	NDC21HG-5R0X	CAPACITOR	5pF,50V
	C201	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C202	NDC21HJ-7R0X	CAPACITOR	7pF,50V
	C203	NDC21HJ-330X	CAPACITOR	33pF,50V
	C204	NDC21HJ-330X	CAPACITOR	33pF,50V
	C207	NCB21CK-224X	CAPACITOR	0.22μF,16V
	C208	NDC21HJ-680X	CAPACITOR	68pF,50V
	C209	NCB21CK-224X	CAPACITOR	0.22μF,16V
	C211	QEKJ1HM-105	E CAPACITOR	1μF,50V
	C212	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C213	QEKJ1HM-105	E CAPACITOR	1μF,50V
	C214	NCB21CK-224X	CAPACITOR	0.22μF,16V
	C215	QEKJ0JM-337	E CAPACITOR	330μF,6.3V
	C220	NDC21HJ-7R0X	CAPACITOR	7pF,50V
	C401	QEKJ1CM-106	E CAPACITOR	10μF,16V
	C402	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C403	NDC21HJ-220X	CAPACITOR	22pF,50V
	C404	NDC21HJ-102X	CAPACITOR	0.001μF,50V
	C405	NDC21HJ-220X	CAPACITOR	22pF,50V
	C406	NDC21HJ-180X	CAPACITOR	18pF,50V
	C407	NCB21HK-223X	CAPACITOR	0.022μF,50V
	C408	NDC21HJ-151X	CAPACITOR	150pF,50V
	C409	NCB21CK-104X	CAPACITOR	0.1μF,16V
	C2003	NCB21HK-123X	CAPACITOR	0.012μF,50V
	C2004	QEKJ1CM-226	E CAPACITOR	22μF,16V
	C2005	NCB21HK-102X	CAPACITOR	0.001μF,50V
	C2007	QEKJ1CM-106	E CAPACITOR	10μF,16V
	C2008	NCB21HK-152X	CAPACITOR	0.0015μF,50V
	C2009	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
	C2010	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
	C2013	NCB21EK-333X	CAPACITOR	0.033μF,25V
	C2015	QEKJ1CM-226	E CAPACITOR	22μF,16V
	C2016	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
	C2051	NCB21HK-331X	CAPACITOR	330pF,50V
	C2052	QFV61HJ-333	F CAPACITOR	0.033μF,50V
	C2053	NCB21HK-332X	CAPACITOR	0.0033μF,50V
	C2054	NCB21EK-103X	CAPACITOR	0.01μF,25V
	C2055	QEKJ1CM-106	E CAPACITOR	10μF,16V
	C2061	QFV61HJ-333	F CAPACITOR	0.033μF,50V
	C2062	NCB21HK-332X	CAPACITOR	0.0033μF,50V
	C2063	NCB21EK-103X	CAPACITOR	0.01μF,25V
	C2064	QEKJ1CM-106	E CAPACITOR	10μF,16V
	C2101	QEKJ1CM-106	E CAPACITOR	10μF,16V
	C2102	QEKJ1CM-226	E CAPACITOR	22μF,16V
	C2202	QETC1CM-226	E CAPACITOR	22μF,16V
	C2207	NCB21CK-473X	CAPACITOR	0.047μF,16V
	C2208	QETC1CM-476	E CAPACITOR	47μF,16V
	C2209	QETC1HM-225	E CAPACITOR	2.2μF,50V
	C2210	QETC1CM-476	E CAPACITOR	47μF,16V
	C2211	NCB21HK-153X	CAPACITOR	0.015μF,50V
	C2212	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C2213	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
	C2214	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C2215	QEKJ1HM-224	E CAPACITOR	0.22μF,50V
	C2216	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
	C2217	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C2218	NCB21HK-153X	CAPACITOR	0.015μF,50V
	C2219	QETC1CM-476	E CAPACITOR	47μF,16V
	C2220	QETC1HM-225	E CAPACITOR	2.2μF,50V
	C2221	NCB21CK-473X	CAPACITOR	0.047μF,16V
	C2222	QEKJ1CM-476	E CAPACITOR	47μF,16V
	C2227	QEKJ1HM-224	E CAPACITOR	0.22μF,50V
	C2228	QEKJ1CM-476	E CAPACITOR	47μF,16V
	C2229	QEKJ1CM-226	E CAPACITOR	22μF,16V
	C2230	QEKJ1CM-106	E CAPACITOR	10μF,16V
	C2231	QEKJ1CM-106	E CAPACITOR	10μF,16V
	C2232	QEKJ1CM-106	E CAPACITOR	10μF,16V
	C2233	QEKJ1HM-105	E CAPACITOR	1μF,50V
	C2234	QEKJ1HM-105	E CAPACITOR	1μF,50V
	C2235	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C2236	QEKJ1CM-476	E CAPACITOR	47μF,16V
	C2251	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C2252	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C2253	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C2254	QEKJ1CM-476	E CAPACITOR	47μF,16V
	C2255	NCB21CK-104X	CAPACITOR	0.1μF,16V
	C2256	NDC21HJ-101X	CAPACITOR	100pF,50V
	C2257	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C2258	NCB21HK-223X	CAPACITOR	0.022μF,50V
	C2259	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C2261	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C3001	QEKJ1CM-336	E CAPACITOR	33μF,16V
	C3004	QETN0JM-228	E CAPACITOR	2200μF,6.3V
	C3006	NCF21EZ-473X	CAPACITOR	0.047μF,25V
	C3012	NCF21EZ-104X	CAPACITOR	0.1μF,25V
	C3013	NCF21EZ-104X	CAPACITOR	0.1μF,25V
	C3014	NCF21CZ-105X	CAPACITOR	1μF,16V
	C3015	QEKJ1CM-106	E CAPACITOR	10μF,16V
	C3016	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C3017	NDC21HJ-150X	CAPACITOR	15pF,50V
	C3019	NDC21HJ-180X	CAPACITOR	18pF,50V
	C3022	NCF21CZ-105X	CAPACITOR	1μF,16V
	C3025	QEKJ1HM-106	E CAPACITOR	10μF,50V
	C3026	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C3027	NCF21EZ-104X	CAPACITOR	0.1μF,25V
	C3034	NCB21HK-221X	CAPACITOR	220pF,50V
	C3036	QEKJ0JM-107	E CAPACITOR	100μF,6.3V
	C3037	QETC0JM-477	E CAPACITOR	470μF,6.3V
	C3302	QEKJ1CM-106	E CAPACITOR	10μF,16V
	C3303	NCF21EZ-104X	CAPACITOR	0.1μF,25V
	C3304	NCF21CZ-105X	CAPACITOR	1μF,16V
	C3305	NCF21EZ-104X	CAPACITOR	0.1μF,25V
	C4001	NDC21HJ-101X	CAPACITOR	100pF,50V
	C4002	NCB21HK-102X	CAPACITOR	0.001μF,50V
	C4003	NDC21HJ-680X	CAPACITOR	68pF,50V
	C4004	NCB21HK-102X	CAPACITOR	0.001μF,50V
	C4005	NDC21HJ-680X	CAPACITOR	68pF,50V

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		C4006	QEKJ1HM-105	E CAPACITOR	1μF,50V
		C4007	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C4008	NCB21EK-103X	CAPACITOR	0.01μF,25V
		C4010	QEKJ1CM-106	E CAPACITOR	10μF,16V
		C4011	QEKJ0JM-107	E CAPACITOR	100μF,6.3V
		C4013	QEKJ1CM-106	E CAPACITOR	10μF,16V
		C4014	NCB21HK-223X	CAPACITOR	0.022μF,50V
		C4015	NCB21HK-222X	CAPACITOR	0.0022μF,50V
		C4016	NDC21HJ-221X	CAPACITOR	220pF,50V
		C4101	NCB21CK-224X	CAPACITOR	0.22μF,16V
		C4102	QEKJ1CM-106	E CAPACITOR	10μF,16V
		C4103	NCB21EK-103X	CAPACITOR	0.01μF,25V
		C4105	NCB21EK-563X	CAPACITOR	0.056μF,25V
		C4106	NCB21HK-102X	CAPACITOR	0.001μF,50V
	⚠	C5001	QFZ9051-683	F CAPACITOR	0.068μF,250V
	⚠	C5004	QCZ9073-472	CAPACITOR	0.0047μF,125V
		C5006	QETM2DM-157	E CAPACITOR	150μF,200V
		C5101	QCZ0212-472	CAPACITOR	0.0047μF,1kV
		C5102	QCZ0302-330Z	CAPACITOR	33pF,1kV
		C5104	QETC1HM-105	E CAPACITOR	1μF,50V
		C5105	QFN31HJ-183	F CAPACITOR	0.018μF,50V
		C5107	QFV11HJ-104	F CAPACITOR	0.1μF,50V
		C5201	QEMU0JM-227	E CAPACITOR	220μF,6.3V
		C5202	QEMT1CM-827	E CAPACITOR	820μF,16V
		C5203	QETC1CM-227	E CAPACITOR	220μF,16V
		C5204	QEMT1AM-128	E CAPACITOR	1200μF,10V
		C5205	QETC1AM-227	E CAPACITOR	220μF,10V
		C5207	QETC1JM-106	E CAPACITOR	10μF,63V
		C5208	QETC1HM-106	E CAPACITOR	10μF,50V
		C5301	QEMU0JM-227	E CAPACITOR	220μF,6.3V
		C5302	QETC1HM-106	E CAPACITOR	10μF,50V
		C5303	QETC1CM-107	E CAPACITOR	100μF,16V
		C5304	QFLC1HJ-183Z	F CAPACITOR	0.018μF,50V
		C5306	NCF21HZ-103X	CAPACITOR	0.01μF,50V
		C5314	NCB21HK-102X	CAPACITOR	0.001μF,50V
		C5315	QETC1AM-107	E CAPACITOR	100μF,10V
		C6024	NCB21EK-563X	CAPACITOR	0.056μF,25V
		C6031	QETC1HM-106	E CAPACITOR	10μF,50V
		C6033	NCB21HK-102X	CAPACITOR	0.001μF,50V
		C6050	NDC21HJ-101X	CAPACITOR	100pF,50V
		C7201	NCB21HK-103X	CAPACITOR	0.01μF,50V
		L1	QQL29BJ-100Z	COIL	10μH
		L2	QQL071J-100Y	COIL	10μH
		L3	QQL231J-220Y	COIL	22μH
		L4	QQL29BJ-100Z	COIL	10μH
		L7	QQL29BJ-470Z	COIL	47μH
		L8	QQL29BJ-680Z	COIL	68μH
		L9	QQL29BJ-220Z	COIL	22μH
		L10	QQL29BJ-100Z	COIL	10μH
		L13	QQL29BJ-100Z	COIL	10μH
		L16	QQL29BJ-101Z	COIL	100μH
		L17	QQLZ011-120Z	COIL	12μH
		L202	QQL29BJ-330Z	COIL	33μH
		L203	QQL29BJ-220Z	COIL	22μH
		L204	QQL29BJ-100Z	COIL	10μH
		L205	QQL29BJ-4R7Z	COIL	4.7μH
		L401	QQL29BJ-101Z	COIL	100μH
		L402	QQL231J-150Z	COIL	15μH
	⚠	L2251	QQL29BJ-470Z	COIL	47μH
		L3001	QQL231J-100Y	COIL	10μH
		L3003	QQL242J-100Z	COIL	10μH

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		L3004	QQL01BJ-101Z	COIL	100μH
		L4001	QQL071J-270Y	COIL	27μH
		L4002	QQL071J-270Y	COIL	27μH
		L5201	PELN1184	COIL	33μH
		L5202	PELN1184	COIL	33μH
		L5301	QQL01BK-101Z	COIL	100μH
		CF3001	QAX0356-001Z	RESONATOR	
		CF3301	QAX0356-001Z	RESONATOR	
		CF7201	QAX0498-001Z	RESONATOR	
		X2	QAX0435-001	CRYSTAL RESONATOR	
		X3001	QAX0444-001	CRYSTAL RESONATOR	
		S3001	QSW0695-001	PUSH SWITCH,S CASS SW	
		S6050	QSW0460-001	SLIDE SWITCH	
		K5101	QQR0678-001Z	FERRITE BEAD	
	⚠	PC5101	PS2501-1	PH COUPLER	
		PS3001	GP3S123	PHOTOTRANSISTOR	
		PS3002	GP3S123	PHOTOTRANSISTOR	
		T2051	PELN0860	OSC TRANSFORMER	
		T2052	PELN0861	OSC TRANSFORMER	
	⚠	T5001	QQS0011-001	SW TRANSFORMER	
	⚠	TB1	LP30360-004B	TERMINAL BOARD ASSY	
		ET1	LP40280-001B	EARTH PLATE	
		OT1	QYTDSF3010Z	SCREW,X3 TERMINAL	
		OT2	QYTDSF2608M	SCREW,X2 S JACK	
		SD1	LP30364-001A	SHIELD PLATE(PRE/REC)	
		SD2	PQ35567	SHIELD CASE(VSC BOARD)	
	⚠	HS1	PQ45788-1-2	HEAT SINK,Q5101	
		OT3	QYTDST3006Z	SCREW,Q5101	
	⚠	F5001	QMF51N2-1R25J1	FUSE	T1.25A
		FC5001	QNG0006-001Z	FUSE CLIP,F5001	
		FC5002	QNG0006-001Z	FUSE CLIP,F5001	
		J1	QNN0205-001	PIN JACK,REAR1 IN	
		J2	QNN0206-001	PIN JACK,REAR OUT	
		J5	QND0032-001	S JACK,S IN	
		J6	QND0032-001	S JACK,S OUT	
		J3001	PU61012	MINI JACK,COMP/R.PAUSE	
		J3002	PU61012	MINI JACK	
	⚠	LF5002	QQR0532-001	LINE FILTER	
	⚠	SG5001	QAF0037-242Z	SURGE ABSORBER	
	⚠	VA5001	QAF0039-431	VARISTOR	
	⚠	VA5002	QAF0039-431	VARISTOR	
		TU6001	QAU0041-002	TUNER	
		TU6002	QAU0067-001	IF UNIT	
		CN1	QGF1018C1-13	FPC CONNECTOR,(1-13)U.DRUM	
		CN2	QGF1207C1-05	FPC CONNECTOR,(1-5)FRONT	
		CN2001	QGF1207C1-07	FPC CONNECTOR,(1-7)A/C HEAD	
		CN2002	QGB2532J1-02	CONNECTOR,(1-2)FE HEAD	
		CN3001	QGB2015M1-08	CONNECTOR,(1-8)CAP.MOTOR	
		CN3003	QGB2532J1-02	CONNECTOR,(1-2)L.MOTOR	
		CN3004	QGB2534J2-04	CONNECTOR,(1-4)R.ENCODER	
		CN3005	QGF1207C1-12	FPC CONNECTOR,(1-12)DISPLAY	
		CN3301	QGB2011L2-06	CONNECTOR,(2-6)DD MOTOR	
		CN4001	QGF1207C1-04	FPC CONNECTOR,(1-5)DRUM.MDA	
	⚠	CN5001	QGA7901C1-02	CONNECTOR,(1-2)AC IN	
		CN7201	QGD2003C1-03	WIRE TRAP CONNECTOR,(1-3)	
	⚠	CP3001	ICP-N10	CIRCUIT PROTECTOR	
	⚠	CP4001	ICP-N15	CIRCUIT PROTECTOR	
	⚠	CP5301	ICP-N25	CIRCUIT PROTECTOR	
	⚠	CP5302	ICP-N25	CIRCUIT PROTECTOR	

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3D SVHS BOARD ASSEMBLY <05>

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION
PW1	LPA10033-01B	3D SVHS BOARD ASSY
IC1001	JCP8008	IC
IC1002	VC2076MP-XE	IC
IC1003	MM1117XF	IC
IC1005	MC14052BF	IC
	or TC74HC4052AF-XE	IC(DIGITAL)
IC1401	JCP8010-2	IC(DIGITAL)
IC1402	MN47V77S-XE	IC
IC1403	MN47V77S-XE	IC
Q1003	DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
	or UN521E	TRANSISTOR
Q1008	DTC143TU	TRANSISTOR
Q1009	DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
	or UN521E	TRANSISTOR
Q1010	DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
	or UN521E	TRANSISTOR
Q1011	2SA1576A/QR/-X	TRANSISTOR
	or 2SB1218A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
Q1013	2SA1576A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
	or 2SB1218A/QR/-X	TRANSISTOR
Q1016	DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
	or UN521E	TRANSISTOR
Q1021	2SA1576A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
	or 2SB1218A/QR/-X	TRANSISTOR
Q1022	DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
	or UN521E	TRANSISTOR
Q1401	2SC1317/RS/-T	TRANSISTOR
Q1402	2SC4081/QRS/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q1403	2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
Q1404	2SC4081/S/-X	TRANSISTOR
Q1405	2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
Q1406	2SA1576A/QR/-X	TRANSISTOR
	or 2SB1218A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
Q1407	2SA1576A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
	or 2SB1218A/QR/-X	TRANSISTOR
Q1408	2SA1576A/QR/-X	TRANSISTOR
	or 2SB1218A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
Q1409	2SA1576A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
	or 2SB1218A/QR/-X	TRANSISTOR

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
Q1410	2SC4081/QRS/-X	TRANSISTOR	
	or 2SD1819A/QRS/-X	TRANSISTOR	
	or 2PC4081/R/-X	TRANSISTOR	
Q1411	2SA1576A/QR/-X	TRANSISTOR	
	or 2PA1576/R/-X	TRANSISTOR	
	or 2SB1218A/QR/-X	TRANSISTOR	
Q1412	DTC144WU	TRANSISTOR	
	or UN521E	TRANSISTOR	
	or RN1309	TRANSISTOR	
Q1413	DTC144WU	TRANSISTOR	
	or RN1309	TRANSISTOR	
	or UN521E	TRANSISTOR	
Q1414	DTC144WU	TRANSISTOR	
	or RN1309	TRANSISTOR	
	or UN521E	TRANSISTOR	
Q1416	DTC144WU	TRANSISTOR	
	or RN1309	TRANSISTOR	
	or UN521E	TRANSISTOR	
Q1417	2SC4081/QRS/-X	TRANSISTOR	
	or 2PC4081/R/-X	TRANSISTOR	
	or 2SD1819A/QRS/-X	TRANSISTOR	
Q1418	DTC144WU	TRANSISTOR	
	or RN1309	TRANSISTOR	
	or UN521E	TRANSISTOR	
Q1419	DTA144WU	TRANSISTOR	
	or UN511E	TRANSISTOR	
D1007	1SS133	DIODE	
	or 1N4148M	DIODE	
D1401	RD3.9ES/B2/-T2	ZENER DIODE	
D1402	1SS133	DIODE	
	or 1N4148M	DIODE	
R1002	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W
R1003	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
R1004	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R1007	NRSA02J-822X	MG RESISTOR	8.2kΩ,1/10W
R1008	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R1009	NRSA02J-225X	MG RESISTOR	2.2MΩ,1/10W
R1010	NRVA02D-332X	CMF RESISTOR	3.3kΩ,1/10W
R1011	NRVA02D-332X	CMF RESISTOR	3.3kΩ,1/10W
R1012	NRVA02D-152X	CMF RESISTOR	1.5kΩ,1/10W
R1013	NRVA02D-471X	CMF RESISTOR	470Ω,1/10W
R1014	NRVA02D-102X	CMF RESISTOR	1kΩ,1/10W
R1015	NRVA02D-102X	CMF RESISTOR	1kΩ,1/10W
R1016	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
R1017	NRSA02J-162X	MG RESISTOR	1.6kΩ,1/10W
R1018	NRSA02J-151X	MG RESISTOR	150Ω,1/10W
R1019	NRSA02J-391X	MG RESISTOR	390Ω,1/10W
R1020	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
R1021	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
R1022	NRSA02J-392X	MG RESISTOR	3.9kΩ,1/10W
R1035	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
R1036	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R1038	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R1039	NRSA02J-394X	MG RESISTOR	390kΩ,1/10W
R1040	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
R1041	QRE123J-391X	RESISTOR	390Ω,1/2W
R1042	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
R1043	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R1049	NRSA02J-475X	MG RESISTOR	4.7MΩ,1/10W
R1050	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
R1051	QRE123J-391X	RESISTOR	390Ω,1/2W

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		R1070	NRSA02J-391X	MG RESISTOR	390Ω,1/10W
		R1071	NRSA02J-224X	MG RESISTOR	220kΩ,1/10W
		R1072	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R1401	NRSA02J-271X	MG RESISTOR	270Ω,1/10W
		R1402	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R1403	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
		R1404	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W
		R1405	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R1406	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R1407	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R1408	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R1409	NRSA02J-681X	MG RESISTOR	680Ω,1/10W
		R1410	NRSA02J-333X	MG RESISTOR	33kΩ,1/10W
		R1411	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W
		R1412	NRSA02J-104X	MG RESISTOR	100kΩ,1/10W
		R1413	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R1414	NRSA02J-821X	MG RESISTOR	820Ω,1/10W
		R1415	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W
		R1416	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R1417	NRSA02J-821X	MG RESISTOR	820Ω,1/10W
		R1418	NRSA02J-391X	MG RESISTOR	390Ω,1/10W
		R1419	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R1420	NRSA02J-152X	MG RESISTOR	1.5kΩ,1/10W
		R1422	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R1423	NRSA02J-821X	MG RESISTOR	820Ω,1/10W
		R1425	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R1426	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R1427	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R1428	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R1429	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R1430	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R1431	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R1432	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R1433	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R1434	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R1435	NRSA02J-242X	MG RESISTOR	2.4kΩ,1/10W
		R1436	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R1437	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		R1438	NRSA02J-821X	MG RESISTOR	820Ω,1/10W
		R1439	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R1440	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
		R1442	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
		R1443	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R1444	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R1445	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R1446	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R1447	NRSA02J-152X	MG RESISTOR	1.5kΩ,1/10W
		R1448	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
		R1449	NRSA02J-470X	MG RESISTOR	47Ω,1/10W
		R1451	NRSA02J-681X	MG RESISTOR	680Ω,1/10W
		R1452	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R1454	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R1455	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R1456	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R1457	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R1458	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R1459	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R1460	NRSA02J-104X	MG RESISTOR	100kΩ,1/10W
		R1461	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R1462	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R1463	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		R1465	NRSA02J-821X	MG RESISTOR	820Ω,1/10W
		R1467	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R1468	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R1470	NRSA02J-752X	MG RESISTOR	7.5kΩ,1/10W
		R1471	NRSA02J-333X	MG RESISTOR	33kΩ,1/10W
		R1472	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R1473	NRSA02J-333X	MG RESISTOR	33kΩ,1/10W
		VR1401	QVPA606-103Z	V RESISTOR,EE Y LEVEL ADJ	
		C1001	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
		C1002	QEKJ1HM-474	E CAPACITOR	0.47μF,50V
		C1003	QEKJ1CM-106	E CAPACITOR	10μF,16V
		C1005	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
		C1006	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1007	NCF21EZ-104X	CAPACITOR	0.1μF,25V
		C1008	NCF21EZ-104X	CAPACITOR	0.1μF,25V
		C1009	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1010	NCF21EZ-104X	CAPACITOR	0.1μF,25V
		C1011	NDC21HJ-330X	CAPACITOR	33pF,50V
		C1013	NCF21EZ-104X	CAPACITOR	0.1μF,25V
		C1014	QEKJ1HM-225	E CAPACITOR	2.2μF,50V
		C1015	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
		C1016	QEKJ1HM-225	E CAPACITOR	2.2μF,50V
		C1019	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1020	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1021	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		C1022	QEKJ1HM-105	E CAPACITOR	1μF,50V
		C1023	QEKJ1HM-225	E CAPACITOR	2.2μF,50V
		C1024	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1026	NCF21EZ-104X	CAPACITOR	0.1μF,25V
		C1027	NCF21EZ-104X	CAPACITOR	0.1μF,25V
		C1028	QEKJ0JM-107	E CAPACITOR	100μF,6.3V
		C1029	QEKJ1HM-104	E CAPACITOR	0.1μF,50V
		C1030	QEKJ1HM-105	E CAPACITOR	1μF,50V
		C1031	QEKJ1HM-225	E CAPACITOR	2.2μF,50V
		C1032	QEKJ1HM-105	E CAPACITOR	1μF,50V
		C1033	QEKJ1HM-105	E CAPACITOR	1μF,50V
		C1034	QEKJ1HM-105	E CAPACITOR	1μF,50V
		C1035	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
		C1036	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
		C1037	QEKJ1HM-225	E CAPACITOR	2.2μF,50V
		C1038	QEKJ1HM-225	E CAPACITOR	2.2μF,50V
		C1039	QEKJ0JM-337	E CAPACITOR	330μF,6.3V
		C1040	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1041	NDC21HG-301X	CAPACITOR	300pF,50V
		C1042	NDC21HG-301X	CAPACITOR	300pF,50V
		C1043	NDC21HG-221X	CAPACITOR	220pF,50V
		C1044	NDC21HG-820X	CAPACITOR	82pF,50V
		C1045	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1046	NDC21HG-271X	CAPACITOR	270pF,50V
		C1047	NDC21HJ-101X	CAPACITOR	100pF,50V
		C1048	NDC21HJ-181X	CAPACITOR	180pF,50V
		C1049	NDC21HG-301X	CAPACITOR	300pF,50V
		C1050	NDC21HG-301X	CAPACITOR	300pF,50V
		C1051	QEKJ0JM-107	E CAPACITOR	100μF,6.3V
		C1052	NCF21EZ-104X	CAPACITOR	0.1μF,25V
		C1053	QEKJ1CM-106	E CAPACITOR	10μF,16V
		C1055	QEKJ1CM-106	E CAPACITOR	10μF,16V
		C1060	NCF21EZ-104X	CAPACITOR	0.1μF,25V
		C1077	QEKJ1CM-107	E CAPACITOR	100μF,16V
		C1078	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1079	QETC0JM-108	E CAPACITOR	1000μF,6.3V

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		C1082	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C1083	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C1084	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C1095	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1401	QEKJ1CM-336	E CAPACITOR	33µF,16V
		C1402	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C1403	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C1404	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C1405	NDC21HJ-220X	CAPACITOR	22pF,50V
		C1406	NDC21HJ-6R0X	CAPACITOR	6pF,50V
		C1407	NDC21HJ-390X	CAPACITOR	39pF,50V
		C1408	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1409	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C1410	QEKJ0JM-337	E CAPACITOR	330µF,6.3V
		C1411	QEKJ1CM-106	E CAPACITOR	10µF,16V
		C1412	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1413	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1414	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C1415	NDC21HJ-221X	CAPACITOR	220pF,50V
		C1416	NDC21HJ-391X	CAPACITOR	390pF,50V
		C1417	NDC21HJ-680X	CAPACITOR	68pF,50V
		C1418	NDC21HJ-8R0X	CAPACITOR	8pF,50V
		C1419	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1420	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1421	NDC21HJ-680X	CAPACITOR	68pF,50V
		C1422	NDC21HJ-330X	CAPACITOR	33pF,50V
		C1424	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1425	QEKJ0JM-337	E CAPACITOR	330µF,6.3V
		C1426	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C1427	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1428	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1429	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1430	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1431	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1432	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
		C1433	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1434	QEKJ0JM-337	E CAPACITOR	330µF,6.3V
		C1435	QEKJ1HM-105	E CAPACITOR	1µF,50V
		C1436	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1437	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1438	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1439	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1440	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1441	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1442	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1443	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1444	QEKJ1HM-105	E CAPACITOR	1µF,50V
		C1445	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1446	NCB21EK-104X	CAPACITOR	0.1µF,25V
		C1447	NCB21HK-222X	CAPACITOR	0.0022µF,50V
		C1448	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1449	QEKJ0JM-337	E CAPACITOR	330µF,6.3V
		C1450	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1451	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1452	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1453	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1454	NDC21HJ-220X	CAPACITOR	22pF,50V
		C1455	NDC21HJ-390X	CAPACITOR	39pF,50V
		C1457	NCF21EZ-104X	CAPACITOR	0.1µF,25V
		C1458	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C1459	NDC21HJ-470X	CAPACITOR	47pF,50V
		C1460	NDC21HJ-470X	CAPACITOR	47pF,50V
		C1461	NDC21HJ-470X	CAPACITOR	47pF,50V
		C1463	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		C1465	NDC21HJ-470X	CAPACITOR	47pF,50V
		C1468	NDC21HJ-470X	CAPACITOR	47pF,50V
		C1469	NDC21HJ-470X	CAPACITOR	47pF,50V
		C1470	NDC21HJ-470X	CAPACITOR	47pF,50V
		C1471	NDC21HJ-470X	CAPACITOR	47pF,50V
		C1472	NDC21HJ-470X	CAPACITOR	47pF,50V
		C1473	NDC21HJ-470X	CAPACITOR	47pF,50V
		C1474	NCB21HK-223X	CAPACITOR	0.022µF,50V
		L1001	QQL29BJ-220Z	COIL	22µH
		L1004	QQL071J-680Y	COIL	68µH
		L1006	QQL29BJ-101Z	COIL	100µH
		L1007	QQL29BJ-101Z	COIL	100µH
		L1010	QQL29BJ-4R7Z	COIL	4.7µH
		L1401	QQL071J-330Y	COIL	33µH
		L1402	QQL29BJ-100Z	COIL	10µH
		L1404	QQL071J-8R2Y	COIL	8.2µH
		L1405	QQL071J-150Y	COIL	15µH
		L1406	QQL071J-6R8Y	COIL	6.8µH
		L1407	QQL29BJ-100Z	COIL	10µH
		L1408	QQL29BJ-100Z	COIL	10µH
		L1409	QQL071J-330Y	COIL	33µH
		L1410	QQL29BJ-4R7Z	COIL	4.7µH
		LC1401	QQR0657-013Z	NOISE FILTER	
		LC1402	QQR0657-010Z	NOISE FILTER	
		BK1	LP40077-001A	BRACKET(BOARD)	
		SD1	LP30431-001B	S.CASE(S-VHS)	
		SD2	LP30406-001A	S.PLATE(S-VHS)	
		CN1001	QGG2503K2-30	HEADER PIN,(1-30)MAIN	
		CN1002	QGG2503K2-30	HEADER PIN,(1-30)MAIN	
		CN1004	QGF1208F1-04	FPC CONNECTOR,(1-4)FRONT	

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AUDIO CONTROL HEAD BOARD ASSEMBLY <12>

PW1	LPA10010-01A1	A/C HEAD BOARD ASSY
CN1	QGF1208F1-07	FPC CONNECTOR

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DEMOD BOARD ASSEMBLY <14>

PW1	PB11076A	DEMOD BOARD ASSY	
IC1501	UPC1852AGT	IC	
	or UPC1854AGT	IC	
R1501	QRE141J-102Y	RESISTOR	1kΩ,1/4W
R1502	QRE141J-334Y	RESISTOR	330kΩ,1/4W
R1503	QRE141J-124Y	RESISTOR	120kΩ,1/4W
R1504	QRE141J-302Y	RESISTOR	3kΩ,1/4W
R1505	QRE141J-512Y	RESISTOR	5.1kΩ,1/4W
R1506	QRE141J-333Y	RESISTOR	33kΩ,1/4W
R1507	QRE141J-333Y	RESISTOR	33kΩ,1/4W
R1508	QRE141J-392Y	RESISTOR	3.9kΩ,1/4W
R1509	QRE141J-122Y	RESISTOR	1.2kΩ,1/4W

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		R1510	QRE141J-392Y	RESISTOR	3.9kΩ,1/4W
		R1511	QRE141J-122Y	RESISTOR	1.2kΩ,1/4W
		R1517	QRE141J-123Y	RESISTOR	12kΩ,1/4W
		C1501	QETC1CM-226	E CAPACITOR	22μF,16V
		C1502	QETC1HM-104	E CAPACITOR	0.1μF,50V
		C1503	QETC1HM-105	E CAPACITOR	1μF,50V
		C1504	QETC1HM-475	E CAPACITOR	4.7μF,50V
		C1505	QETC1HM-225	E CAPACITOR	2.2μF,50V
		C1506	QETC1HM-104	E CAPACITOR	0.1μF,50V
		C1507	QFV11HJ-473	F CAPACITOR	0.047μF,50V
		C1508	QETC1HM-474	E CAPACITOR	0.47μF,50V
		C1509	QETC1HM-104	E CAPACITOR	0.1μF,50V
		C1510	QETC1HM-105	E CAPACITOR	1μF,50V
		C1511	QETC1HM-105	E CAPACITOR	1μF,50V
		C1512	QETC1HM-105	E CAPACITOR	1μF,50V
		C1513	QEE81CJ-335	T CAPACITOR	3.3μF,16V
		C1514	QEE81CJ-106	T CAPACITOR	10μF,16V
		C1515	QETC1HM-105	E CAPACITOR	1μF,50V
		C1516	QETC1HM-106	E CAPACITOR	10μF,50V
		C1517	QETC1HM-106	E CAPACITOR	10μF,50V
		C1518	QETC1HM-105	E CAPACITOR	1μF,50V
		C1521	QETC1HM-106	E CAPACITOR	10μF,50V
		BK1	LP40077-001A	BRACKET(BOARD)	
		CN1501	QGG2502K1-09	HEADER PIN,(1-9)MAIN	

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MV/CM ADV BOARD ASSEMBLY <23>

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		PW1	LPA10013-02A	MV/CM ADV BOARD ASSY	
		IC7401	AN3275SB	IC	
		Q7401	2SD1819A/QRS/-X	TRANSISTOR	
			or 2SC4081/QRS/-X	TRANSISTOR	
			or 2PC4081/R/-X	TRANSISTOR	
		Q7402	2SB1218A/QR/-X	TRANSISTOR	
			or 2PA1576/R/-X	TRANSISTOR	
			or 2SA1576A/QR/-X	TRANSISTOR	
		Q7403	UN521E	TRANSISTOR	
			or RN1309	TRANSISTOR	
			or DTC144WU	TRANSISTOR	
		Q7404	UN521E	TRANSISTOR	
			or DTC144WU	TRANSISTOR	
			or RN1309	TRANSISTOR	
		Q7405	2SB1218A/QR/-X	TRANSISTOR	
			or 2SA1576A/QR/-X	TRANSISTOR	
			or 2PA1576/R/-X	TRANSISTOR	
		Q7406	UN511E	TRANSISTOR	
			or DTA144WU	TRANSISTOR	
			or RN2309	TRANSISTOR	
		R7404	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R7405	NRSA02J-823X	MG RESISTOR	82kΩ,1/10W
		R7406	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W
		R7408	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R7409	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R7410	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W
		R7421	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R7422	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R7424	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R7425	NRSA02J-152X	MG RESISTOR	1.5kΩ,1/10W
		R7427	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R7428	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W
		R7429	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
		R7430	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R7431	NRSA02J-271X	MG RESISTOR	270Ω,1/10W
		R7432	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R7433	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R7434	NRSA02J-392X	MG RESISTOR	3.9kΩ,1/10W
		R7435	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W
		R7436	NRSA02J-331X	MG RESISTOR	330Ω,1/10W
		R7437	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R7438	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
		R7439	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R7440	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R7441	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		C7401	QDYB1CM-103Y	CAPACITOR	0.01μF,16V
		C7402	QETC1CM-476	E CAPACITOR	47μF,16V
		C7403	QFN31HJ-272	F CAPACITOR	0.0027μF,50V
		C7404	QETC1HM-104	E CAPACITOR	0.1μF,50V
		C7406	NCB21HK-222X	CAPACITOR	0.0022μF,50V
		C7407	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C7408	NCF21EZ-104X	CAPACITOR	0.1μF,25V
		C7411	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C7414	QFV91HJ-104	F CAPACITOR	0.1μF,50V
		C7415	QFV91HJ-224	F CAPACITOR	0.22μF,50V
		C7416	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C7417	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C7418	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C7419	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C7420	NDC21HJ-390X	CAPACITOR	39pF,50V
		C7421	QETC1HM-105	E CAPACITOR	1μF,50V
		C7422	QETC1HM-105	E CAPACITOR	1μF,50V
		C7424	NCB21HK-102X	CAPACITOR	0.001μF,50V
		C7426	QEKC1HM-225	E CAPACITOR	2.2μF,50V
		C7427	NCF21EZ-104X	CAPACITOR	0.1μF,25V
		C7430	NCB21HK-562X	CAPACITOR	0.0056μF,50V
		C7431	NCB21HK-473X	CAPACITOR	0.047μF,50V
		C7432	NCB21HK-223X	CAPACITOR	0.022μF,50V
		L7401	QQL01BK-100Z	COIL	10μH
		L7402	QQL231J-470Y	COIL	47μH
		BK1	LP40077-001A	BRACKET(BOARD)	
		CN7402	QGG2502K1-10	HEADER PIN,(1-8)MAIN	

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SW/DISPLAY BOARD ASSEMBLY <28>

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		PW1	LPA10031-01B1	DISPLAY BOARD ASSY	
		IC7001	M35500BFP	IC	
			or M35500AGP	IC	
			or M35500BGP	IC	
		IC7002	PNA4652M00XB	IR DETECT UNIT	
			or GP1U281X	IR DETECT UNIT	
		D7002	RD9.1ES/B2/-T2	ZENER DIODE	
			or MTZJ9.1B	ZENER DIODE	
			or UZ9.1BSB	ZENER DIODE	
		D7004	1N4148M	DIODE	
			or 1SS133	DIODE	
		D7009	SLR-342MC3F	LE DIODE	

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R7001	QRE141J-471Y	RESISTOR	470Ω,1/4W
R7002	QRE141J-471Y	RESISTOR	470Ω,1/4W
R7003	QRE141J-471Y	RESISTOR	470Ω,1/4W
R7004	QRE141J-471Y	RESISTOR	470Ω,1/4W
R7005	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7006	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7007	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7008	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7013	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7014	QRE141J-470Y	RESISTOR	47Ω,1/4W
R7020	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7021	QRE141J-122Y	RESISTOR	1.2kΩ,1/4W
R7022	QRE141J-182Y	RESISTOR	1.8kΩ,1/4W
R7023	QRE141J-222Y	RESISTOR	2.2kΩ,1/4W
R7024	QRE141J-272Y	RESISTOR	2.7kΩ,1/4W
R7025	QRE141J-472Y	RESISTOR	4.7kΩ,1/4W
R7026	QRE141J-682Y	RESISTOR	6.8kΩ,1/4W
R7027	QRE141J-153Y	RESISTOR	15kΩ,1/4W
R7028	QRE141J-393Y	RESISTOR	39kΩ,1/4W
R7030	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7031	QRE141J-122Y	RESISTOR	1.2kΩ,1/4W
R7032	QRE141J-182Y	RESISTOR	1.8kΩ,1/4W
R7033	QRE141J-222Y	RESISTOR	2.2kΩ,1/4W
R7034	QRE141J-272Y	RESISTOR	2.7kΩ,1/4W
R7035	QRE141J-472Y	RESISTOR	4.7kΩ,1/4W
R7036	QRE141J-682Y	RESISTOR	6.8kΩ,1/4W
R7037	QRE141J-153Y	RESISTOR	15kΩ,1/4W
R7038	QRE141J-393Y	RESISTOR	39kΩ,1/4W
R7040	QRE141J-331Y	RESISTOR	330Ω,1/4W
R7053	QRE141J-393Y	RESISTOR	39kΩ,1/4W
C7001	QDVB1EZ-223Y	CAPACITOR	0.022μF,25V
C7002	QETC1HM-106	E CAPACITOR	10μF,50V
C7007	QEKC0JM-476	E CAPACITOR	47μF,6.3V
C7009	QCSB1HJ-150	CAPACITOR	15pF,50V
C7010	QCFB1HZ-104	CAPACITOR	0.1μF,50V
C7011	QETC0JM-337	E CAPACITOR	330μF,6.3V
C7019	QDVB1EZ-223Y	CAPACITOR	0.022μF,25V
S7001	QSW0456-002Z	TACT SWITCH,D7009	
S7002	QSW0456-002Z	TACT SWITCH,CH+	
S7003	QSW0456-002Z	TACT SWITCH,CH-	
S7004	QSW0456-002Z	TACT SWITCH,REC	
S7005	QSW0456-002Z	TACT SWITCH,PAUSE	
S7006	QSW0456-002Z	TACT SWITCH,PLAY	
S7007	QSW0456-002Z	TACT SWITCH,STOP/EJECT	
S7008	QSW0456-002Z	TACT SWITCH,FF	
S7009	QSW0456-002Z	TACT SWITCH,REW	
S7011	QSW0456-002Z	TACT SWITCH,OK	
S7012	QSW0456-002Z	TACT SWITCH,INSERT	
S7013	QSW0456-002Z	TACT SWITCH,MENU	
S7014	QSW0456-002Z	TACT SWITCH,TBC	
S7015	QSW0456-002Z	TACT SWITCH,A.DUB	
S7016	QSW0456-002Z	TACT SWITCH,ET	
DI7001	QLF0032-002	FL TUBE	
HD1	LP30428-001A	FDP HOLDER(L),DI7001	
HD2	LP30429-001A	FDP HOLDER(R),DI7001	
HD3	PQM30038-6	LED HOLDER,D7009	
FW7001	PW30101-60AA442	PARALLEL WIRE	
CN7001	QGF1207C1-12	FPC CONNECTOR,(1-12)MAIN	

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REC SAFETY BOARD ASSEMBLY <32>

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PW2	LPA10031-01B2	REC SAFETY BOARD ASSY	
S7041	QSW0602-002	PUSH SWITCH	

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JACK BOARD ASSEMBLY <36>

PW3	LPA10031-01B3	JACK BOARD ASSY	
R7191	QRE141J-750Y	RESISTOR	75Ω,1/4W
R7192	QRE141J-0R0Y	RESISTOR	0Ω,1/4W
R7193	QRE141J-750Y	RESISTOR	75Ω,1/4W
R7194	QRE141J-750Y	RESISTOR	75Ω,1/4W
C7196	QDYB1CN-103Y	CAPACITOR	0.01μF,16V
J7191	PEMC1126	PIN JACK,VIDEO IN	
J7192	PEMC0922	PIN JACK(SW),VIDEO IN	
J7193	PEMC0922	PIN JACK(SW),AUDIO(L)IN	
J7194	QND0010-001	S JACK,S IN	
CN7191	QGF1207F1-05	FPC CONNECTOR,(1-5)	
CN7192	QGF1207F1-04	FPC CONNECTOR,(1-4)	

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LOADING MOTOR BOARD ASSEMBLY <55>

PW2	LPA10010-01A2	L.MOTOR BOARD ASSY	
CN1	QGB2533K1-02	CONNECTOR	

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VSC BOARD ASSEMBLY <72>

PW1	PB10995C	VSC BOARD ASSY	
IC2501	LC85405E	IC	
	or LC85405NE	IC	
Q2501	2SD1819A/QRS/-X	TRANSISTOR	
	or 2SC4081/QRS/-X	TRANSISTOR	
	or 2PC4081/R/-X	TRANSISTOR	
Q2502	UN521E	TRANSISTOR	
	or DTC144WU	TRANSISTOR	
	or RN1309	TRANSISTOR	
D2501	1N4148M	DIODE	
	or 1SS133	DIODE	
R2501	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R2502	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R2503	NRSA02J-104X	MG RESISTOR	100kΩ,1/10W
R2504	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R2505	NRSA02J-105X	MG RESISTOR	1MΩ,1/10W
R2506	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
R2507	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R2508	NRSA02J-333X	MG RESISTOR	33kΩ,1/10W
R2509	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		R2510	NRSA02J-104X	MG RESISTOR	100kΩ,1/10W
		R2511	NRSA02J-154X	MG RESISTOR	150kΩ,1/10W
		R2512	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R2513	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R2514	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R2515	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R2516	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R2518	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R2519	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R2520	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R2521	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R2522	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		C2501	QEKJ0JM-107	E CAPACITOR	100µF,6.3V
		C2502	NCB21HK-562X	CAPACITOR	0.0056µF,50V
		C2503	QEKJ1HM-105	E CAPACITOR	1µF,50V
		C2505	QEKJ0JM-107	E CAPACITOR	100µF,6.3V
		C2506	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C2507	QEKJ1CM-226	E CAPACITOR	22µF,16V
		C2508	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C2509	QEKJ1CM-106	E CAPACITOR	10µF,16V
		C2510	QEKJ1CM-476	E CAPACITOR	47µF,16V
		C2511	NCB21HK-222X	CAPACITOR	0.0022µF,50V
		C2512	NDC21HJ-331X	CAPACITOR	330pF,50V
		C2513	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C2518	NCB21HK-102X	CAPACITOR	0.001µF,50V
		C2519	NCB21HK-103X	CAPACITOR	0.01µF,50V
		L2501	QQL242J-2R2Z	COIL	2.2µH
		LPF2501	PELN1137	LOW PASS FILTER	
		CF2501	QAX0399-001Z	RESONATOR	
		LC2501	QQL29BJ-470Z	COIL	47µH
		CN2501	QGG2502K1-09	HEADER PIN,(1-9)MAIN	

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JLIP BOARD ASSEMBLY <91>

PW2	LPA10028-01D2	JLIP BOARD ASSY	
J7201	PEMC1190	MINI JACK	
CN7202	QUM033-26A4BF	PARA RIBON WIRE	

⚠ REF No. PART No. PART NAME, DESCRIPTION